



University Bulletin

Undergraduate Degree Programs

Primary Navigation

Penn State Erie, The Behrend College

PENN STATE ERIE, THE BEHREND COLLEGE, located on 854 wooded acres in Erie, Pennsylvania, provides a small-university environment within the context of a major university. With its thirty-six undergraduate programs, Penn State Behrend offers an alternative within Penn State to the larger University Park campus. Classes are small and students are encouraged to interact with faculty outside the classroom. Enrolling more than 4,500 students, Penn State Behrend is a comprehensive four-year undergraduate and graduate college with a full range of supporting services, from residence halls through varsity athletics. The college offers a wide variety of co-curricular activities, including fraternities and sororities, more than 120 student clubs and organizations, intramurals, bands and choirs, and an annual speaker series.

Penn State Behrend students can earn the Bachelor of Arts, Bachelor of Science, or Bachelor of Fine Arts degree at the four-year level; they can earn associate degrees in selected two-year programs; or they can complete up to two years of most baccalaureate programs available within the University and then move to other Penn State locations to complete their degree program. Academic enrichment is provided through the Behrend Honors Program and the University-wide Schreyer Honors College as well as through study abroad opportunities and a very active undergraduate research program. The college's programs capitalize on the proximity of such "natural laboratories" as the Erie urban area, Lake Erie, and other nearby resources.

For additional information write to Penn State Erie, The Behrend College, 4701 College Drive, Erie, PA 16563-0101; or visit Penn State Behrend on the web (<http://behrend.psu.edu>).

GENERAL GRADUATION REQUIREMENTS

To be certified for graduation, a student must complete the General Education, Writing Across the Curriculum, and Intercultural/International Competence requirements, the First-year Seminar requirements for the major, and the number of elective credits required in each program. The minimum number of credits for each program is listed in the description of the major. In addition to the minimum number of credits required, each student must earn at least a grade of C in each 300- and 400-level course in the major field and must have earned a minimum 2.00 grade-point average.

REQUIREMENTS FOR ALL B.A. PROGRAMS EXCEPT SCIENCE AT PENN STATE BEHREND

GENERAL EDUCATION: 45 credits

Note: See <http://bulletins.psu.edu/undergrad/generaleducation> for the most current information.

BACHELOR OF ARTS DEGREE REQUIREMENTS: 9-24 credits

FOREIGN LANGUAGE (0-12 credits)

Student must attain a 12th credit level of proficiency in one foreign language

B.A. FIELDS (9 credits)

Humanities, Social and Behavioral Sciences, Arts, Foreign Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; foreign language credits in this category must be in a second foreign language or beyond the 12th credit level of proficiency in the first language)

OTHER CULTURES (0-3 credits)

Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the General Education US/IL requirement. See approved list at <http://bulletins.psu.edu/undergrad/barequirements>.

RECOMMENDED ACADEMIC PLANS

Recommended Academic Plans provide, in table form, the courses students might schedule semester by semester as they pursue a specific undergraduate degree. Each college or campus maintains Recommended Academic Plans for its own majors/degree programs. Links to these plans are on the Division of Undergraduate Studies website at: <http://www.dus.psu.edu/semplans.htm>. Questions concerning the Recommended Academic Plans should be directed to the college or campus involved or the Division of Undergraduate Studies.

ENROLLMENT CONTROLS

The Executive Vice President and Provost of the University approves administrative enrollment controls that limit the number of students who may be admitted to some majors in The Behrend College. In each case, however, academic requirements are established that guarantee a student's admission to those majors. For information on the majors for which enrollment is currently limited and their academic guarantees of admission, contact the Academic and Career Planning Center, Reed Union Building, Room 125, 4701 College Drive, Erie, PA 16563-0904, (814-898-6164).

PENN STATE ERIE, THE BEHREND COLLEGE

RALPH M. FORD, *Chancellor*

ROBERT W. LIGHT, *Senior Associate Dean for Research and Outreach, and Chief Operating Officer*

DAWN G. BLASKO, *Associate Dean for Academic Affairs*

COLLEGE ORGANIZATION

Academic and Career Planning Center -- TERRI MANDO and COURTNEY STEDING,
Co-Directors

Admissions and Financial Aid/Enrollment Management -- MARY-ELLEN MADIGAN,

Director

Business, Sam and Irene Black School of -- BALAJI RAJAGOPALAN, *Director*

Center for eLearning Initiatives -- WAYNE E. ANDERSON, *Instructional Designer*

Community and Workforce Programs -- MICHELLE HARTMANN, *Director*

Center for Teaching Initiatives -- QI DUNSWORTH, *Director*

Computer and Information Systems -- JAMES SERAFIN and LAWRENCE KOSIN,
Co-Managers

Copy and Multimedia Center -- JOHN J. FONTECCHIO, *Manager*

Development and Alumni Relations -- MARGARET U. TAYLOR, *Director*

Engineering, School of -- RUSS WARLEY, *Director*

Financial Officer -- TRACY CLAYBAUGH

Housing and Food Services -- J. MICHAEL LINDNER, *Director*

Humanities and Social Sciences, School of -- ERIC CORTY, *Director*

Intercollegiate Athletics -- BRIAN F. STREETER, *Director*

Learning Resource Center -- RUTH C. PFLUEGER, *Director*

Library -- RICHARD L. HART, *Director*

Marketing Communication -- WILLIAM V. GONDA, *Director*

Office of Adult Learner Services -- BIDDY A. BROOKS, *Director*

Operations -- J. RANDALL GEERING, *Director*

Registrar -- JANE D. BRADY, *College Registrar*

Science, School of -- MARTIN G. KOCIOLEK, *Interim Director*

Student Affairs -- KENNETH P. MILLER, *Senior Director of Campus Planning and Student Affairs*

SAM AND IRENE BLACK SCHOOL OF BUSINESS ¹

DR. BALAJI RAJAGOPALAN, *Director*

The Sam and Irene Black School of Business offers Bachelor of Science degree programs in Accounting; Business Economics; Finance; Interdisciplinary Business with Engineering Studies; International Business; Management Information Systems; Marketing; and Project and Supply Chain Management. The school also offers a four-year Bachelor of Arts degree in Economics and an associate degree in General Business. At the graduate level, a Master's in Business Administration (MBA), a Master's in Professional Accounting (MPAcc), and a Master's in Project Management (MPM) are offered. Minors are available in Accounting, Applied Economics, Finance, Management, Management Information Systems, Marketing, Operations and Supply Chain Management, and Technical Sales.

Students in the Black School of Business learn in a multidisciplinary setting, taught in small classes by faculty members who have significant business experience in addition to their academic credentials. The school offers students a high-tech academic environment

in the Jack Burke Research and Economic Development Center and unique learning opportunities made possible by a \$20 million endowment from the late insurance executive Samuel P. Black Jr. and his wife, Irene, for whom the school is named.

For more information, visit the school website at <http://behrend.psu.edu/business>

Note

¹Accredited by the Association to Advance Collegiate Schools of Business International, 777 South Harbour Island Blvd., Suite 750, Tampa, FL 33602; 813-769-6500

SCHOOL OF ENGINEERING

DR. RUSS WARLEY, *Director*

The School of Engineering offers Bachelor of Science degree programs in Computer Engineering,¹ Computer Science, Electrical Engineering,¹ Electrical and Computer Engineering Technology,² Industrial Engineering, Mechanical Engineering,¹ Mechanical Engineering Technology,² Plastics Engineering Technology,² and Software Engineering. In addition, associate degree programs are offered in Electrical Engineering Technology² and Mechanical Engineering Technology.² Minors are available in Computer Engineering, Computer Science, and Game Development.

The school gives students the opportunity to learn in the state-of-the art facilities of the Jack Burke Research and Economic Development Center, to conduct research with award-winning faculty, and to be recruited by companies from around the world. Under the guidance of faculty members, engineering students engage in basic and applied research in more than fifteen focus area. More than 95 percent of graduates of the school are employed in their field within a year of graduation.

For more information, visit the school website at <http://behrend.psu.edu/engineering>

Notes

¹Accredited by the Engineering Accreditation Commission of the Accreditation Board of Engineering and Engineering Technology, 111 Market Place, Suite 1050, Baltimore, MD 21202; 410-347-7700.

²Accredited by the Technology Accreditation Commission of the Accreditation Board of Engineering and Engineering Technology, 111 Market Place, Suite 1050, Baltimore, MD 21202; 410-347-7700.

SCHOOL OF HUMANITIES AND SOCIAL SCIENCES

DR. STEVEN V. HICKS, *Director*

The School of Humanities and Social Sciences offers Bachelor of Arts degree programs in Arts Administration, Childhood and Early Adolescent Education, Communication, English, General Arts and Sciences, History, Political Science, and Psychology. The school also offers a Bachelor of Science degree in Psychology and a Bachelor of Fine Arts degree in Creative Writing. In addition, a two-year associate degree in Letters, Arts, and Sciences is available. Minors are available in American Studies, Civic and Community Engagement, Communication Arts and Mass Media, English, Game Development, History, Politics and Government, Psychological Science, Spanish, Transnational Perspectives, and Women's Studies/Gender Studies. This school also houses prelaw advising and a 4+1 teacher certification program.

In the School of Humanities and Social Sciences, students are taught by accomplished

faculty: scholars with international reputation for research, award-winning writers, and skilled teachers with extensive professional experience. The school gives students the chance to study abroad, publish in creative and professional journals, research human behavior in laboratory settings, and work on the production of films, television and radio shows, a literary journal, and a campus newspaper.

For more information, visit the school website at <http://behrend.psu.edu/hss>

SCHOOL OF SCIENCE

DR. MARTIN G. KOCIOLEK, *Interim Director*

The School of Science offers Bachelor of Science degree programs in Biology, Chemistry,¹ Environmental Science, Mathematics, Nursing,² Physics, Science, and Secondary Education in Mathematics.³ Minors are available in Biology, Chemistry, Mathematics, Physics, and Statistics. The school also works with partnered schools to offer 3+4 accelerated programs in dentistry, optometry, osteopathic medicine, and pharmacy and also participates in an early assurance program with Penn State Hershey College of Medicine.

Students in the School of Science learn through hands-on practical experiences and close interaction with knowledgeable faculty in small class and laboratory settings. The school's programs provide a broad-based education with an emphasis on the scientific and mathematical skills needed for careers in business and industry or for further studies in graduate and professional programs.

For more information, visit the school website at: <http://behrend.psu.edu/science>

Notes

¹Major has American Chemical Society approval.

²Major has National League for Nursing Accrediting Commission and Commission on Collegiate Nursing Education accreditation.

³Major has National Council for Accreditation for Teacher Education accreditation.

ACADEMIC AND CAREER PLANNING CENTER

TERRI MANDO and COURTNEY STEDING, *Co-Directors*

The Academic and Career Planning Center is an academic unit of Penn State Behrend that offers all undergraduate students University programs and services relating to (1) precollege testing, counseling, and advising for entering freshmen; (2) enrollment and registration for students who want to explore several areas of study before identifying a specific area of academic study and for students who encounter changes in interest and career objectives; (3) professional advising, counseling, and referral services coordinated through the services of the college and faculty; and (4) an undergraduate academic information center that provides students and faculty with current information on the many academic programs offered throughout the University.

INTERCOLLEGIATE ATHLETICS

BRIAN F. STREETER, *Director of Athletics*

Penn State Behrend offers twenty-two sports for men and women and is a member of the National Collegiate Athletic Association (NCAA) Division III and a founding member of the

Allegheny Mountain Collegiate Conference. Penn State Behrend is also affiliated with the Eastern College Athletic Conference (ECAC). The college subscribes to the Division III philosophy of competition and embraces the concepts of fair play and equity in all programs. Men's varsity sports are baseball, basketball, cross-country, golf, indoor track and field, soccer, swimming and diving, tennis, track and field, volleyball, and water polo. Women's varsity sports are basketball, cross-country, golf, indoor track and field, soccer, softball, swimming and diving, tennis, track and field, volleyball, and water polo.

Baccalaureate Degrees

Accounting

Penn State Erie, The Behrend College (ACNTG)

The Accounting major provides an opportunity to pursue a unique program that integrates knowledge and skill in accounting and information management. It helps prepare students for positions in public accounting firms, corporations, and government, where accounting skills are essential. In addition, the accounting major provides the necessary academic training for students interested in administrative responsibilities in the area of accounting.

Entrance to Major Requirements:

Entry to the Accounting major requires the completion of 5 entry-to-major courses: ACCTG 211(4); ECON 102 GS(3); ENGL 015 GWS(3) or ENGL 030 GWS(3); MATH 110 GQ(4) or MATH 140 GQ(4); STAT 200 GQ(4) or SCM 200(4), and a 2.00 or higher cumulative grade-point average.

For the B.S. degree in Accounting, a minimum of 120 credits is required. Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

GENERAL EDUCATION: 45 credits

(15 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in this bulletin.)

FIRST-YEAR SEMINAR:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in REQUIREMENTS FOR THE MAJOR)

WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

ELECTIVES: 1 credit

REQUIREMENTS FOR THE MAJOR: 89 credits

(This includes 15 credits of General Education courses: 6 credits of GQ courses; 6 credits of GS courses; 3 credits of GWS courses.)

PRESCRIBED COURSES (56 credits)

ACCTG 211(4), ECON 102 GS(3), ECON 104 GS(3), ENGL 202D GWS(3) (Sem: 3-4)
FIN 301(3)[1], MGMT 301(3)[1], MIS 204(3), MKTG 301(3), SCM 301(3)[1] (Sem: 3-6)
ACCTG 310(3)[1], ACCTG 312(3)[1], ACCTG 371(4)[1], ACCTG 472(3)[1] (Sem: 5-6)
ACCTG 340(3)[1], ACCTG 403(3)[1], ACCTG 422(3)[1], ACCTG 450(3)[1], MGMT
471W(3)[1] (Sem: 7-8)

ADDITIONAL COURSES (21 credits)

MATH 110 GQ(4) or MATH 140 GQ(4) (Sem: 1-2)

SCM 200 GQ(4) or STAT 200 GQ(4) (Sem: 3-4)

BA 241(2) and BA 242(2) or BA 243(4) (Sem: 3-6)

Select 3 credits from ECON 470(3), ECON 473 IL(3)[1], FIN 471 (3)[1], MGMT 461 IL(3)[1],
MKTG 445(3)[1], or other 400-level international business course (Sem: 5-8)

Select 6 credits from ACCTG 410(3)[1], ACCTG 411(3)[1], ACCTG 440(3)[1], ACCTG
495(1-18)[1], BLAW 444(3)[1], or other 300- to 400-level courses either within the major
or from other business areas (see School list of approved courses) (Sem: 5-8)

SUPPORTING COURSES AND RELATED AREAS (12 credits)

Select 12 credits from the approved electives course list for the major. (Sem: 1-8)

[1] A student enrolled in this major must receive a grade of C or better, as specified in
Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2010

Blue Sheet Item #: 39-01-054

Review Date: 08/24/2010

UCA Revision #1: 8/2/06

UCA Revision #2: 7/26/07

BD

Arts Administration

Penn State Erie, The Behrend College (ARTSA)

Penn State Lehigh Valley (ARACC)

*Not all options are available at every campus. Contact the campus you are interested in
attending to determine which options are offered.*

The Penn State Erie Arts Administration program is intended for students with an interest
in the arts and a desire to pursue careers in the administration or management of arts
organizations such as museums, theatre companies, orchestras and choruses. The
program combines a broad exposure to the arts with intensive training in management,
marketing, writing, and development.

The interdisciplinary Arts Administration program answers the growing need for leaders
and administrators of arts organizations that must compete, survive, and thrive in a
corporate world. Recognizing that these organizations have missions that are different
from business corporations, the Arts Administration program aims to produce capable
arts administrators, managers, and entrepreneurs with both aesthetic sensibilities and
business acumen. Successful arts administration is crucial to the continued vitality of
modern cultural institutions, creative enterprises, and arts organizations. If the public is
to benefit, skilled arts administrators must facilitate the work of artists to realize their
artistic vision and share it with the public, by executing the necessary financial, legal, and
organizational decisions. In short, talented arts administrators are partners in a
collaborative artistic process. The major includes the following options:

Digital Media Option - emphasizes design and social media engagement, so that student may create and manage online content for cultural organizations. Students develop proficiency in web writing, image editing, layout, and advertising.

Marketing Option - provides a business core for careers that emphasize marketing with arts organizations. The coursework includes statistics, marketing research, and other marketing courses relevant to arts and cultural organizations.

For the B.A. degree in Arts Administration, a minimum of 121 credits is required. Students must earn C or better in ARTH 111 GA;IL(3) or ARTH 112 GA;IL(3), MUSIC 005 GA(3), THEA 105 GA(3) to be eligible for entrance to the major. Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

GENERAL EDUCATION: 45 credits

(15-18 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in front of Bulletin.)

FIRST-YEAR SEMINAR:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in GENERAL EDUCATION course selection or REQUIREMENTS FOR THE MAJOR)

WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

BACHELOR OF ARTS DEGREE REQUIREMENTS: 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.) (See description of Bachelor of Arts Degree Requirements in this bulletin.)

COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS): (72-73 credits)

(This includes 15-18 credits of General Education courses: 6 credits of GA courses; 3-6 credits of GQ courses; 3 credits of GS courses, 3 credits of GWS courses.)

PRESCRIBED COURSES: (39 credits)

MUSIC 5 GA(3)[1], THEA 105 GA(3)[1] (Sem: 1-2)

MIS 204(3), MKTG 301(3)[1] (Sem: 3-4)

ECON 102 GS(3), ENGL 202D GWS(3) (Sem: 4)

ACCTG 211(4), ARTSA 301(3)[1], ARTSA 402(3)[1], ARTSA 403(3)[1], ARTSA 404(3)[1], BA 241(2), COMM 370(3)[1][18] (Sem: 5-6)

ADDITIONAL COURSES (12 credits)

Select 3 credits from: ARTH 111 GA;IL(3)[1][18] or ARTH 112 GA;IL(3)[1][18]

Select 3 credits from: MATH 21 GQ(3) or higher (Sem: 1-2)

Select 3 credits from: ARTSA 401(3)[1] or COMM 472(3)[1]

Select 3 credits from ARTSA 495A (3)[1]

Students desiring to take an internship for ARTSA credit must have a GPA of 3.00.

Students with lower than a 3.00 GPA can request an exemption by providing letters of recommendation for the internship form 2 members of the ARTSA faculty

OR

Students may enroll in an additional COMM or MKTG course at the 400 level to develop option-specific competencies instead of taking ARTSA 495A.

REQUIREMENTS FOR THE OPTION (21-22 credits)

DIGITAL MEDIA OPTION (21 credits)

PRESCRIBED COURSES (9 credits)

COMM 320(3)[1], COMM 441(3)[1], ENGL 420(3)[1]

ADDITIONAL COURSES (6 credits)

Select 3 credits from: ARTH 111 GA;IL(3)[1] or ARTH 112 GA;IL(3)[18] or MUSIC 8 GA(3)[18] or THEA 102 GA(3)[18]

Select 3 credits from COMM 270(3)[1][18] or GD 100 GA(3)[18]

SUPPORTING COURSES AND RELATED AREAS (6 credits)

Select 6 credits from program approved list in Music, Theatre or Visual Arts in consultation with adviser and according to student interest (Sem: 4-7)

MARKETING OPTION (22 credits)

PRESCRIBED COURSES (3 credits)

MKTG 342(3)[1]

ADDITIONAL COURSES (10 credits)

Select 3 credits from ARTH 111 GA;IL(3)[18] or ARTH 112 GA;IL(3)[18] or MUSIC 8 GA(3)[18] or THEA 102 GA(3)[18] (Sem: 1-4)

Select 3 credits from MKTG 344(3)[1] or MKTG 330(3)[1]

Select 4 credits from SCM 200 GQ(4)[1] or STAT 200 GQ(4)[1]

SUPPORTING COURSES AND RELATED AREAS (9 credits)

Select 6 credits from program approved list in Music, Theatre or Visual Arts in consultation with adviser and according to student interest. In addition, students will select 3 credits from a program-approved list of 400 level courses in Marketing. (Sem: 4-7)

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

[18] A grade of C or better per course is required for teacher certification.

Last Revised by the Department: Fall Semester 2017

Blue Sheet Item #: 46-01-134

Review Date: 8/22/2017

Biology

Penn State Erie, The Behrend College (BIOBD)

The curriculum in Biology is designed to provide students with a strong background in the biological sciences. It provides preparation for students who intend to secure advanced degrees through graduate study, students who intend to prepare for careers in medicine or health-related fields, and students preparing for careers with companies or agencies requiring employees with biological backgrounds. The curriculum has six options allowing students to choose an area of specialization that will best meet their career goals. In addition to selecting an option, students are strongly encouraged to participate in faculty-supervised research. The options are: *General Biology* - various areas of modern biology; *Ecology, Evolution, and Behavior* - theoretical, practical, and

applied ecology and evolution of plants and animals; *Genetics and Developmental Biology* - genetics and developmental biology of plants and animals; *Molecular and Cellular Biology and Biochemistry* - molecular and cellular mechanisms of biology; *Medical Technology* - prepares students for careers in clinical laboratories; and *Health Professions*- prepares students for careers in medicine and veterinary sciences; this option also allows exceptional students, who gain early admission to a professional school, to fulfill option requirements with a set number of academic credits taken during the first professional year.

Entrance Requirement: In order for entrance to the Biology major, a student must have: 1) attained at least a 2.00 cumulative grade point average; 2) completed BIOL 110 GN(4) and earned a grade of C or better; and 3) completed at least one of the following courses with a grade of C or better: BIOL 220W GN(4), or BIOL 240W GN(4).

For the B.S. degree in Biology, a minimum of 124 credits is required. Each student must earn at least a grade of C in each 200-, 300-, and 400-level BIOL, BMB, MICRB, PPEM and WFS course in the major field.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

GENERAL EDUCATION: 45 credits
(18 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)
(See description of General Education in this bulletin.)

FIRST-YEAR SEMINAR:
(Included in REQUIREMENTS FOR THE MAJOR)

UNITED STATES CULTURES AND INTERNATIONAL CULTURES:
(Included in GENERAL EDUCATION course selection)

WRITING ACROSS THE CURRICULUM:
(Included in REQUIREMENTS FOR THE MAJOR)

REQUIREMENTS FOR THE MAJOR: 97-99 credits
(This includes 18 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GWS courses.)

COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS): 41 credits

PRESCRIBED COURSES (41 credits)
CHEM 110 GN(3), CHEM 111 GN(I), CHEM 112 GN(3), CHEM 113 GN(I) (Sem: 1-2)
BIOL 110 GN(4)[1], BIOL 220W GN(4)[1], BIOL 230W GN(4)[1], BIOL 240W GN(4)[1], MATH 140 GQ(4), MATH 141 GQ(4) (Sem: 1-4)
ENGL 202C GWS(3), STAT 250 GQ(3) (Sem: 3-6)
BIOL 322(3)[1] (Sem: 5-6)

REQUIREMENTS FOR THE OPTION: 56-58 credits

ECOLOGY, EVOLUTION, AND BEHAVIOR OPTION: (56 credits)
Students can select courses in theoretical or applied ecology, evolution, field biology and animal behavior to build strength in ecological science. The option prepares students for graduate study in ecology and evolution, or careers in zoo science, environmental consulting, environmental management, environmental education or positions with regulatory agencies.

PRESCRIBED COURSES (3 credits)
BIOL 427(3)[1] (Sem: 7-8)

ADDITIONAL COURSES (26-30 credits)

BIOL 402(3) or STAT 461(3) or STAT 462(3) or STAT 464(3) or STAT 466(3) (Sem: 5-8)

Select 6-8 credits from one of the following sequences:

a. CHEM 202(3), CHEM 203(3) (Sem: 3-4)

b. CHEM 210(3), CHEM 212(3), CHEM 213(2) (Sem: 3-4)

Select 8-10 credits from one of the following sequences:

a. PHYS 250 GN(4), PHYS 251 GN(4) (Sem: 5-8)

b. PHYS 211 GN(4), PHYS 212 GN(4); PHYS 213 GN(2) or PHYS 214 GN(2) (Sem: 5-8)

Select 9 credits from the following:

BIOL 428(3)[1], BIOL 429(3)[1], BIOL 435(3)[1], BIOL 438(3)[1], BIOL 446(3)[1], BIOL 463(3)[1] (Sem: 5-8)

SUPPORTING COURSES AND RELATED AREAS (23-27 credits)

Select 7 credits in GEOG 160 GS(3), GEOG 161(1), and GEOG 363(3) and 10-14 credits from school approved list (Sem: 1-8)

OR

Select 17-21 credits from school approved list (Sem: 1-8)

Select 6 credits of 400-level BIOL, BMB, MICRB, PPEM, or WFS[1] courses excluding BIOL 400 and any courses numbered 494, 495, 496, 497, 498, or 499 (Sem: 5-8)

GENERAL BIOLOGY OPTION: (56 credits)

Students can select courses from a variety of areas of contemporary biology. The option provides the flexibility to enable students to tailor their program for graduate study in many fields of biology or careers requiring broad backgrounds and diverse skills in the biological sciences.

PRESCRIBED COURSES (3 credits)

BIOL 427(3)[1] (Sem: 7-8)

ADDITIONAL COURSES (14-18 credits)

Select 6-8 credits from one the following sequences:

a. CHEM 202(3), CHEM 203(3) (Sem: 3-4)

b. CHEM 210(3), CHEM 212(3), CHEM 213(2) (Sem: 3-4)

Select 8-10 credits from one of the following sequences:

a. PHYS 250 GN(4), PHYS 251 GN(4) (Sem: 5-8)

b. PHYS 211 GN(4), PHYS 212 GN(4); PHYS 213 GN(2) or PHYS 214 GN(2) (Sem: 5-8)

SUPPORTING COURSES AND RELATED AREAS (35-39 credits)

Select 20-24 credits from school approved list (Sem: 1-8)

Select 15 credits of 400-level BIOL, BMB, MICRB, PPEM, or WFS[1] courses excluding BIOL 400 and any courses numbered 494, 495, 496, 497, 498, or 499 (Sem: 5-8)

GENETICS AND DEVELOPMENTAL BIOLOGY OPTION: (56 credits)

Students can select courses to develop strengths in various areas of transmission, medical, population or molecular genetics and/or study the developmental process at the organismal, histological or molecular levels. The option prepares students for admission to professional programs in the health sciences, graduate programs in genetic counseling, plant or animal breeding, developmental biology, or careers in research or biotechnology.

PRESCRIBED COURSES (16 credits)

CHEM 210(3), CHEM 212(3), CHEM 213(2) (Sem: 3-4)

MICRB 201(3)[1], MICRB 202(2)[1] (Sem 3-6)

BIOL 427(3)[1] (Sem: 7-8)

ADDITIONAL COURSES (17-19 credits)

Select 9 credits from the following:

BMB 406(3)[1], BIOL 410(3)[1], BIOL 422(3)[1], BIOL 428(3)[1], BIOL 430(3)[1], BIOL

460(3)[1], (Sem: 5-8)

Select 8-10 credits from one of the following sequences:

- a. PHYS 250 GN(4), PHYS 251 GN(4) (Sem: 5-8)
- b. PHYS 211 GN(4), PHYS 212 GN(4); PHYS 213 GN(2) or PHYS 214 GN(2) (Sem: 5-8)

SUPPORTING COURSES AND RELATED AREAS (21-23 credits)

Select 15-17 credits from school approved list (Sem: 1-8)

Select 6 credits of 400-level BIOL, BMB, MICRB, PPEM, or WFS[1] courses excluding BIOL 400 and any courses numbered 494, 495, 496, 497, 498, or 499 (Sem: 5-8)

MEDICAL TECHNOLOGY OPTION: (56-58 credits)

Students spend approximately twelve months at an affiliated hospital[12] during their senior year to complete the clinical phase of their baccalaureate studies. A fixed number of spaces are available on a competitive basis of grade-point average and hospital approval. The Bachelor of Science degree in Biology is awarded upon successful completion of the clinical study. The graduate is also eligible to take the national examination for certification and registry as a medical technologist.

PRESCRIBED COURSES (44 credits)

MICRB 201(3)[1], MICRB 202(2)[1] (Sem: 3-4)

PHYS 250 GN(4), PHYS 251 GN(4) (Sem: 5-6)

MICRB 405A(8)[1], MICRB 405B(1)[1], MICRB 405C(6)[1], MICRB 405D(5)[1], MICRB 405E(7)[1], MICRB 405F(3)[1], MICRB 408(1)[1] (Sem: 7-8)

ADDITIONAL COURSES (8-10 credits)

Select 8-10 credits from one the following sequences:

- a. CHEM 202(3), CHEM 203(3), CHEM 221(4) (Sem: 3-4)
- b. CHEM 210(3), CHEM 212(3), CHEM 213(2) (Sem: 3-4)

SUPPORTING COURSES AND RELATED AREAS (4 credits)

Select 1 credit from approved list (Sem: 1-6)

Select 3 credits of 400-level B M B, BIOL, MICRB from:

BMB 402(3)[1], BMB 406(3)[1], BIOL 460(3)[1], BIOL 472(3)[1], or MICRB 415(3)[1] (Sem: 5-6)

MOLECULAR AND CELLULAR BIOLOGY AND BIOCHEMISTRY OPTION: (56 credits)

Students can select courses to develop strengths in the study of biology at the cellular and molecular levels, including basic metabolism and its regulations, DNA recombinant technology, bioinformatics and genomics. The option prepares students for admission to professional programs in the health sciences, graduate study, or careers in biotechnology or research.

PRESCRIBED COURSES (26 credits)

CHEM 210(3), CHEM 212(3), CHEM 213(2), MICRB 201(3)[1], MICRB 202(2)[1] (Sem 3-6)

BMB 401(3)[1], BMB 402(3)[1], BMB 403(1)[1], BMB 406(3)[1] (Sem: 5-8)

BIOL 427(3)[1] (Sem: 7-8)

ADDITIONAL COURSES (11-13 credits)

Select 8-10 credits from one of the following sequences:

- a. PHYS 250 GN(4), PHYS 251 GN(4) (Sem: 5-8)
- b. PHYS 211 GN(4), PHYS 212 GN(4); PHYS 213 GN(2) or PHYS 214 GN(2) (Sem: 5-8)

Select 3 credits from BMB 465(3)[1], BIOL 404(3)[1], BIOL 439(3)[1], BIOL 441(3)[1], MICRB 410(3)[1], MICRB 412(3)[1], or MICRB 415(3)[1] (Sem: 5-8)

SUPPORTING COURSES AND RELATED AREAS (17-19 credits)

Select 14-16 credits from school approved list (Sem: 1-8)

Select 3 credits of 400-level BIOL, BMB, MICRB, PPEM, or WFS[1] courses excluding BIOL 400 and any courses numbered 494, 495, 496, 497, 498, or 499 (Sem: 5-8)

HEALTH PROFESSIONS OPTION: (56 credits)

Students can prepare for the rigors of advanced health professions education by following the course of study outlined in this option. This option is also provided for exceptional students who are admitted into a "3+4" accelerated or early acceptance program at an approved or affiliated professional school. Students are granted 21 credits toward the Bachelor of Science degree following the successful completion of the first professional academic year. The Health Professions Committee will work with such students to develop an appropriate program of study.

PRESCRIBED COURSES (29 credits)

MICRB 201(3)[1], MICRB 202(2)[1] (Sem: 1-2)

CHEM 210(3), CHEM 212(3), CHEM 213(2) (Sem: 3-4)

BMB 402(3)[1], BMB 403(1)[1], BIOL 421(4)[1], BIOL 472(3)[1], BIOL 473(2)[1] (Sem: 5-8)

BIOL 427(3)[1] (Sem: 7-8)

ADDITIONAL COURSES (11-13 credits)

Select 8-10 credits from one of the following sequences:

a. PHYS 250 GN(4), PHYS 251 GN(4) (Sem: 5-8)

b. PHYS 211 GN(4), PHYS 212 GN(4); PHYS 213 GN(2) or PHYS 214 GN(2) (Sem: 5-8)

Select 3 credits from: BMB 401(3)[1] or CHEM 472(3)[1] (Sem: 5-8)

SUPPORTING COURSES AND RELATED AREAS (14-16 credits)

Select 11-13 credits from school approved list (Sem: 1-8)

Select 3 credits of 400-level BIOL, BMB, MICRB, PPEM, or WFS[1] courses excluding BIOL 400 and any courses numbered 494, 495, 496, 497, 498, or 499 (Sem: 5-8)

[1]A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

[12]Current affiliation is with St. Vincent Health Center, School of Medical Technology, Erie, PA.

Last Revised by the Department: Spring Semester 2015

Blue Sheet Item #: 43-05-011

Review Date: 02/24/2015

UCA Revision #1: 8/2/06

UCA Revision #2: 7/26/07

BD

Business Economics

Penn State Erie, The Behrend College (BECON)

Business Economics is a quantitatively-oriented program of study in applied economics. Leading to a B.S. degree, this major combines in-depth study of economics with a general business background, the latter including courses in accounting, finance, management, management information systems, marketing, and quantitative business analysis. Students may choose upper-division economics courses in business and economic forecasting, econometrics, economic theory, industrial organization, international economics, labor economics, managerial economics, and urban and regional economics. Use of computers as analytical and problem-solving tools is emphasized in the program. The major also includes several non-business supporting areas of study from which students may choose courses.

Entrance to Major Requirements:

Entry to the Business Economics major requires the completion of 5 entry-to-major courses: ACCTG 211(4); ECON 102 GS(3); ENGL 015 GWS(3) or ENGL 030 GWS(3); MATH 110 GQ(4) or MATH 140 GQ(4); STAT 200 GQ(4) or SCM 200(4), and a 2.00 or higher cumulative grade-point average.

For the B.S. Degree in Business Economics, a minimum of 120 credits is required.

Each student enrolled in this major must earn at least a grade of C in each 300- and 400-level course.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

GENERAL EDUCATION: 45 credits

(15 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in this bulletin.)

FIRST-YEAR SEMINAR:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in GENERAL EDUCATION course selection or REQUIREMENTS FOR THE MAJOR)

WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

ELECTIVES: 2 credits**REQUIREMENTS FOR THE MAJOR:** 88 credits

(This includes 15 credits of General Education courses: 6 credits of GQ courses; 6 credits of GS courses; 3 credits of GWS courses.)

PRESCRIBED COURSES (43 credits)

ACCTG 211(4), ECON 102 GS(3), ECON 104 GS(3), ENGL 202D GWS(3) (Sem: 3-4)

FIN 301(3)[1], MGMT 301(3)[1], MIS 204(3), MKTG 301(3)[1], SCM 310(3)[1] (Sem: 3-6)

ECON 302 GS(3)[1], ECON 304 GS(3)[1], ECON 485(3)[1] (Sem: 5-6)

ECON 470(3)[1] (Sem: 5-8)

MGMT 471W(3)[1] (Sem: 7-8)

ADDITIONAL COURSES (24 credits)

[Some courses in this category have prerequisites that are not required in the program.]

MATH 110 GQ(4) or MATH 140 GQ(4) (Sem: 1-2)

SCM 200 GQ(4) or STAT 200 GQ(4) (Sem: 3-4)

BA 241(2) and BA 242(2) or BA 243(4) (Sem: 3-6)

Select 12 credits from ECON 342(3)[1], ECON 410(3)[1], ECON 430(3)[1], ECON 442(3)[1], ECON 481(3)[1], or ECON 482(3)[1] (Sem: 5-8)

SUPPORTING COURSES AND RELATED AREAS (21 credits)

Select 9 credits of 300- or 400-level economics or other business courses [1] (see school list of approved courses) (Sem: 5-8)

Select 12 credits from the approved electives course list for the major. (Sem: 1-8)

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2010

Blue Sheet Item #: 39-01-055

Review Date: 08/24/2010

UCA Revision #1: 8/3/06

UCA Revision #2: 7/26/07

BD

Chemistry

Penn State Erie, The Behrend College (CHMBD)

This major provides a strong foundation in chemistry and prepares students for graduate or professional programs and for careers with companies and agencies requiring chemistry or related areas. The major has four options that allow students to choose an area of specialization to meet their career goals. These options are: general chemistry, biochemistry, business, and chemistry education pre-certification. Students have the opportunity to participate in research with faculty members.

Entrance Requirement: In order to be eligible for entrance to the CHMBD major (all options), a student must have: (1) attained at least 29.1 credits and (2) earned at least a 2.00 cumulative grade-point average.

For the B.S. degree in Chemistry, a minimum of 124 credits is required. Each student must earn at least a grade of C in each 300- and 400-level course in the major field and must have earned a minimum 2.00 grade-point average.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

GENERAL EDUCATION: 45 credits

(18-21 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in this bulletin.)

FIRST-YEAR SEMINAR:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

ELECTIVES: 0-6 credits

REQUIREMENTS FOR THE MAJOR: 92-102 credits

(This includes 18-24 credits of General Education courses. For the General Chemistry Option, and Biochemistry Option, 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GWS courses. For the Business Option, 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 3 credits of GWS courses. For the Chemistry Education Pre-Certification Option, 9 credits of GN courses; 6 credits of GQ courses; 6 credits of GS courses; 3 credits of GWS courses.)

COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS): 54 credits

PRESCRIBED COURSES (54 credits)

CHEM 110 GN(3)[1], CHEM 111 GN(1)[1], CHEM 112 GN(3)[1], CHEM 113 GN(1)[1], MATH 140 GQ(4)[1], MATH 141 GQ(4)[1], PHYS 211 GN(4)[1], PHYS 212 GN(4)[1] (Sem: 1-4)
CHEM 210(3)[1], CHEM 212(3)[1], CHEM 213(2)[1], CHEM 221(4)[1], CHEM 316(1) (Sem:

3-6)

CHEM 400(1), CHEM 413(4), CHEM 431(3), CHEM 440(3), CHEM 441(1), CHEM 443(1), CHEM 457(1), and CHEM 472(3) (Sem: 5-8)

REQUIREMENTS FOR THE OPTION: 38-48 credits

GENERAL CHEMISTRY OPTION:(38 credits)

PRESCRIBED COURSES (14 credits)

CHEM 450(3), CHEM 452(3) and CHEM 457(1), ENGL 202C GWS(3)[1], MATH 230(4)[1]
(Sem: 3-8)

ADDITIONAL COURSES (12 credits)

Select 3 credits from MATH 250(3)[1] or STAT 401(3) (Sem: 3-6)

Select 6 credits of 400-level CHEM courses (excluding CHEM 494, CHEM 495, and CHEM 496) (Sem: 5-8)

Select 3 credits from CHEM 494(1-12) or CHEM 496(1-18) (Sem: 5-8)

SUPPORTING COURSES AND RELATED AREAS (12 credits)

Select 12 credits from school-approved list. (Students may apply up to 6 credits of ROTC.)
(Sem: 1-8)

BIOCHEMISTRY OPTION: (44 credits)

PRESCRIBED COURSES (26 credits)

BMB 402(3), BIOL 110S GN(4)[1], BIOL 230W GN(4)[1] (Sem: 3-8)

ENGL 202C GWS(3)[1], MATH 230(4)[1](Sem: 3-8)

BMB 403(1), CHEM 450(3), CHEM 452(3) and CHEM 457(1) (Sem: 5-8)

ADDITIONAL COURSES (12 credits)

Select 3 credits from BMB 406(3), BMB 465(3), BIOL 322(3), MICRB 201(3) (Sem: 3-8)

Select 3 credits from MATH 250(3)[1] or STAT 401(3) (Sem: 3-6)

Select 3 credits of 400-level CHEM courses (excluding CHEM 494, CHEM 495, and CHEM 496) (Sem: 5-8)

Select 3 credits from CHEM 494(1-12) or CHEM 496(1-18) (Sem: 5-8)

SUPPORTING COURSES AND RELATED AREAS (6 credits)

Select 6 credits from school-approved list. (Students may apply up to 6 credits of ROTC.)
(Sem: 1-8)

BUSINESS OPTION: (46-47 credits)

PRESCRIBED COURSES (22 credits)

ECON 102 GS(3)[1], ENGL 202D GWS(3)[1], MGMT 301(3), MKTG 301(3) (Sem: 3-8)

CHEM 496(3) (Sem: 5-8)

SCM 200 GQ(4)[1], STAT 401(3) (Sem: 3-6)

ADDITIONAL COURSES (18-19 credits)

CHEM 450(3) or CHEM 452(3) (Sem: 5-6)

Select 6 credits of 400-level CHEM courses (excluding CHEM 494, CHEM 495, and CHEM 496) (Sem: 5-8)

Select 9-10 credits in one of the following sequences:

a) SCM 310(3), MGMT 331(3), MGMT 410(3), MGMT 420(3) (Sem: 5-8)

b) MKTG 342(3), MKTG 330(3), MKTG 327(3), MKTG 410(3), MKTG 428(3) (Sem: 5-8)

c) CMPSC 203 GQ(4), MIS 204(3), MIS 336(3), MIS 430(3), MIS 445(4) (Sem: 5-8)

d) One selection each from a), b), and c) above (Sem: 5-8)

SUPPORTING COURSES AND RELATED AREAS (6 credits)

Select 6 credits from school-approved list. (Students may apply up to 6 credits of ROTC.)
(Sem: 1-8)

CHEMISTRY EDUCATION PRE-CERTIFICATION OPTION: (47-48 credits)

This option helps prepare students for chemistry education teaching positions in secondary schools. It includes the academic requirements for the Chemistry Education Instructional I certificate issued by the Pennsylvania Department of Education.

PRESCRIBED COURSES (26-27 credits)

CHEM 450(3), CHEM 452(3) and CHEM 457(1), ENGL 202C GWS(3)[11], MATH 230(4)[11],
PSYCH 100 GS(3)[11] (Sem: 3-8)

EDPSY 014(3) taken concurrently with CI 295(1), EDTHP 115 US(3) taken concurrently with
CI 295(1) (Sem:3-8)

CHEM 395(1-2) (Sem: 5-8)

ADDITIONAL COURSES (15 credits)

Select 3 credits from MATH 250(3)[11] or STAT 401(3) (Sem: 3-6)

Select 6 credits of 400-level CHEM courses (excluding CHEM 494, CHEM 495, and CHEM
496) (Sem: 5-8)

Select 3 credits from CHEM 494(1-12) or CHEM 496(1-18) (Sem: 5-8)

HDFS 129 GS(3)[84] or PSYCH 212 GS(3)[84] (Sem: 5-8)

SUPPORTING COURSES AND RELATED AREAS (6 credits)

Select 6 credits from school-approved list. (Students may apply up to 6 credits of ROTC.)
(Sem: 1-8)

[1] A student enrolled in this major must receive a grade of C or better, as specified in
Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2011

Blue Sheet Item #: 40-04-017

Review Date: 01/10/2012

ETM revision: 1/15/2013

UCA Revision #1: 10/10/06

UCA Revision #2: 7/26/07

BD

Communication

Penn State Erie, The Behrend College (COMBA)

The B.A. major in Communication offers a liberal arts background with emphasis in mass media studies and corporate communication. It prepares students for careers in corporate communication, print and broadcast journalism, multi-media and video production, and advertising/public relations by providing an interdisciplinary study of spoken, written, visual, and technically mediated messages.

For the B.A. degree in Communication, a minimum of 120 credits is required.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

GENERAL EDUCATION: 45 credits

(0-3 of these credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in this bulletin.)

FIRST-YEAR SEMINAR:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

ELECTIVES: 9-21 credits

BACHELOR OF ARTS DEGREE REQUIREMENTS: 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)

(See description of Bachelor of Arts Degree Requirements in this bulletin.)

REQUIREMENTS FOR THE MAJOR: 45 credits

(This includes 0-3 of these credits of General Education courses: 0-3 credits of GA courses in the Journalism/Media Productions (Multimedia Area).)

PRESCRIBED COURSES (13 credits) **[1]**

CAS 202 GS(3), COMM 160(1), COMM 251(3) (Sem: 1-4)

CAS 204(3), COMM 315(3) (Sem: 5-6)

ADDITIONAL COURSES (17 credits) **[1]**

Select 3 credits from CAS 101 GS(3), CAS 175 GH(3), COMM 100 GS(3), COMM 110 GH(3), COMM 118 GS(3), COMM 150 GA(3), COMM 168 GH(3), or COMM 180 GS(3) (Sem: 1-2)

COMM 242(3); or COMM 270(3) (Sem: 1-4)

CAS 212(3); or CAS 252(3) (Sem: 5-6)

CAS 271 US;IL(3); or COMM 410 IL(3) (Sem: 5-8)

COMM 494(3); or COMM 495(3-6) (Sem: 7-8)

Select two credits from the following: COMM 001(1-3), COMM 002(1-3), COMM 003(1-3), or COMM 004(1-3) (Sem: 1-8)

SUPPORTING COURSES AND RELATED AREAS (15 credits) **[1]**

COMBA students are required to complete 15 credits of supporting coursework, from department approved list. Nine of these credits must be at the 400-level. In consultation with an academic advisor, students will select 6-9 credits from 2 of 3 Concentrations; 1. Communication Studies, 2. Strategic Communication, and 3. Journalism/Media Production. (Sem: 1-8)

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2014

Blue Sheet Item #: 43-02-013

Review Date: 10/7/2014

UCA Revision #2: 7/27/07

BD

Computer Engineering

Penn State Erie, The Behrend College (CENBD)

This major provides students with a strong foundation in computer engineering through a combination of classroom study, design projects, and laboratory experience. Analysis and design of computer hardware and software systems are stressed. Built upon a core of science and mathematics courses, this major has the objective of educating graduates to be problem solvers. Students acquire the ability to work as members of a team toward successful attainment of a common goal, preparing them for industry or further study in graduate school. In addition, written and oral communication skills are developed from an early stage, culminating in a senior design project that stresses communication as well as engineering content.

In addition to completing a broad-based science core in mathematics, chemistry and physics, students pursue their interest in computer engineering by studying principles in digital hardware design, computer architecture, computer software, microelectronics, and computer data communications. The student will be required to analyze and solve a significant computer engineering design problem during the senior year.

Entrance Requirement: In addition to the Carnegie unit and minimum GPA requirements described by University policies, all students applying for entrance to any of the engineering majors at Behrend College must have at least a 2.0 cumulative GPA by the end of the semester prior to applying for entrance to the major and have completed, with a minimum grade of C: CHEM 110 GN(3), MATH 140 GQ(4), MATH 141 GQ(4), and PHYS 211 GN(4). These courses must be completed by the end of the semester during which the admission to major process is carried out.

For the B.S. degree in computer engineering, a minimum of 130 credits is required. Each student must earn at least a grade of C in each 300-and 400-level course in the major field.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

GENERAL EDUCATION: 45 credits
(21 of the 45 credits are included in the REQUIREMENTS FOR THE MAJOR)
(See description of General Education in this bulletin.)

FIRST-YEAR SEMINAR:
(Included in ELECTIVES or GENERAL EDUCATION course selection)

UNITED STATES CULTURES AND INTERNATIONAL CULTURES:
(Included in GENERAL EDUCATION course selection)

WRITING ACROSS THE CURRICULUM:
(Included in REQUIREMENTS FOR THE MAJOR)

ELECTIVES: 1 credit

REQUIREMENTS FOR THE MAJOR: 105 credits
(This includes 21 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GWS courses; 3 credits of GS courses)

PRESCRIBED COURSES (93 credits)
CHEM 110 GN(3)[1], CHEM 111 GN(1)[1] (Sem: 1-2)
CMPEN 271(3)[1], CMPSC 121 GQ(3), CMPSC 122(3)[1], CMPSC 275(1)[1], CMPSC 360(3)[1], EE 210(4)[1], ENGL 202C GWS(3), MATH 140 GQ(4)[1], MATH 141 GQ(4)[1], MATH 220 GQ(2-3)[1], MATH 230(4)[1], MATH 250(3)[1], PHYS 211 GN(4)[1], PHYS 212

GN(4), PHYS 214 GN(2) (Sem: 1-4)
CMPEN 411(3)[1], CMPEN 352(3)[1], CMPEN 371(3)[1], CMPEN 431(3)[1], CMPSC
465(3)[1], EE 310(4)[1], CMPEN 351(3)[1], EE 352(4)[1], STAT 301(3)[1] (Sem: 5-6)
CMPEN 461(3)[1], CMPEN 441(3)[1], CMPEN 480(3)[1], CMPEN 481(3)[1] (Sem: 7-8)

ADDITIONAL COURSES (3 credits)

ECON 102 GS(3) or ECON 104 GS(3) (Sem: 1-6)

SUPPORTING COURSES AND RELATED AREAS (9 credits)

Select 9 credits of technical elective courses from school-approved list. (Sem: 7-8)

[1]A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-4.

Last Revised by the Department: Summer Session 2001

Blue Sheet Item #: 29-01-016

Review Date: 01/17/02

UCA Revision #1: 8/3/06

UCA Revision #2: 7/27/07

BD

Computer Science

Penn State Erie, The Behrend College (CMPBD)

The goal of the Computer Science major at Behrend is to produce graduates with a firm foundation in the fundamentals of computer science along with a significant background in one or more of the natural sciences to provide context. Students are encouraged to pursue a minor in one of the natural sciences (biology, chemistry), math, or statistics. Students prepare for the major by taking lower-division courses in programming, discrete math, computer organization, and data communications. They then complete upper-division courses in data structures and algorithms, data base management systems, net-centric programming, programming language fundamentals, and operating systems, and systems programming.

Graduates of this program will be prepared for a wide variety of computer-oriented careers in business, industry, and government, particularly in areas that require the practical application of computer science concepts and techniques to solving problems in the natural sciences. In addition, graduates will be prepared to pursue graduate study in computer science or in computationally intensive sub-disciplines of the natural sciences, such as bio-informatics, computational biology, computational physics, or computational chemistry.

Entrance Requirement: To be eligible for entrance to the Computer Science (CMPBD) major, a student must have completed MATH 140 GQ(4), MATH 141 GQ(4), CMPSC 121 GQ(3), CMPSC 122(3), and one of the following: BIOL 110 GN(4), or CHEM 110 GN(3) and CHEM 111 GN(1) or PHYS 211 GN(4) with a grade of C or better in each of these courses.

For a B.S. degree in Computer Science, a minimum of 122-123 credits is required. A student enrolled in this major must earn at least a grade of C in each 300- and 400-level course in the major field.

Scheduling Recommendations by Semester Standing given like (Sem: 1-2)

GENERAL EDUCATION: 45 credits

(21 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in this bulletin.)

FIRST-YEAR SEMINAR:

(Included in ELECTIVES)

UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in GENERAL EDUCATION course selection)

WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

ELECTIVES: 1 credit

REQUIREMENTS FOR THE MAJOR: 97-98 credits

(This includes 21 credits of General Education courses: 6 credits of GQ courses, 6 credits of GWS courses, 9 credits of GN courses.)

PRESCRIBED COURSES (57 credits)

CMPSC 121 GQ(3)[1], CMPSC 122(3)[1], MATH 140 GQ(4)[1], MATH 141 GQ(4)[1], MATH 220 GQ(2) (Sem: 1-2)

CMPSC 221(3), CMPSC 312(3)[1], CMPSC 335(3)[1], CMPSC 360(3)[1], CAS 100A GWS(3), ENGL 202C GWS(3) (Sem: 3-4)

CMPSC 465(3)[1], STAT 301(3)[1] (Sem: 5-6)

CMPSC 431W(3)[18], CMPSC 461(3)[1], CMPSC 474(3)[1], CMPSC 421(3)[18], CMPSC 484(2)[1], CMPSC 485(3)[1] (Sem: 7-8)

ADDITIONAL COURSES (25-26 credits)

Select one of the following sequences (10-11 credits):

a. CHEM 110 GN(3), BIOL 110 GN(4), BIOL 220W GN(4) or BIOL 230 GN(4) or BIOL 240 GN(4) (Sem:1-2)

b. CHEM 110 GN(3), CHEM 111 GN(I), CHEM 112 GN(3), CHEM 113 GN(1), CHEM 210(3) (Sem: 1-2)

c. PHYS 211 GN(4), PHYS 212 GN(4), PHYS 213 GN(2) or PHYS 214 GN(2) (Sem: 1-2)

Select at least 15 additional science credits from department approved list (Sem: 3-8)

SUPPORTING COURSES AND RELATED AREAS (15 credits)

Select 6 credits from the school approved list [Students may apply 6 credits of ROTC] [Students may apply 6 credits of internship CMPSC 495] (Sem: 3-8)

Select 9 additional credits from CMPSC 302 or higher, CMPEN, SWENG. (Sem: 1-8)

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

[18] A grade of C or better per course is required for teacher certification.

Last Revised by the Department: Fall Semester 2017

Blue Sheet Item #: 46-01-016

Review Date: 8/22/17

UCA Revision #1: 8/3/06

UCA Revision #2: 7/27/07

BD

Creative Writing

Penn State Erie, The Behrend College (CWRIT)

The major allows students to develop their writing skills through craft classes, literature classes, and writing workshops, in preparation for a variety of post-graduation options, from continuing on to M.F.A. degree programs to working in the professional fields of publishing, editing and education. The program recognizes students must understand the relationship between tradition and individual talent, and provides a required sequence of literature courses designed to give students an overview of the historical literary traditions, especially modern and contemporary prose and poetry. It also provides options for sequences of writing workshops, requires a course in creative writing theory, and requires a course that fosters professional development and features live reading by visiting authors. The program culminates in a capstone experience, the senior thesis, a collection of poetry or prose of publishable quality that includes a critical preface demonstrating the students' ability to analyze and contextually their own writing.

For the B.F.A. degree in Creative Writing, a minimum of 121 credits is required. A student enrolled in this major must earn at least a grade of C in each 300- and 400-level course.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

GENERAL EDUCATION: 45 credits

(See description of General Education in this bulletin.)

FIRST-YEAR SEMINAR:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in GENERAL EDUCATION course selection)

WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

REQUIREMENTS FOR THE MAJOR: 76 credits

PRESCRIBED COURSES (46 credits)

CMLIT 010 GH;IL(3)[1], ENGL 006(1-8)*, ENGL 100(3)[1], ENGL 200(3)[1], ENGL 212(3)[1], ENGL 213(3)[1] (Sem: 1-4)

ENGL 312(3)[1], ENGL 433(3)[1] (Sem: 4-6)

ENGL 420(3)[1], ENGL 436(3)[1], ENGL 437(3)[1], ENGL 458(3)[1] (Sem: 5-8)

ENGL 401W(3)[1], ENGL 494(6)[1] (Sem: 7-8)

*Students planning to major in creative writing should enroll in this course every semester (typically 8 semesters). A student is required to take this course a minimum of four times.

ADDITIONAL COURSES (24 credits)

Select 12 credits of a Foreign Language (0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.) (Sem:1-4)

ENGL 443(3)[1] or ENGL 444(3)[1] (Sem: 4-8)

Select 9 credits from of the following: ENGL 412(3)[1], ENGL 413(3)[1], ENGL 422(3)[1], ENGL 423(3)[1] (Sem: 4-8)

SUPPORTING COURSES AND RELATED AREAS (6 credits)

Select 6 credits from courses at the 200-level or above in CMLIT or ENGL [1] (Sem: 1-8)

In addition to the requirements above, for enrichment, students in the B.F.A. degree program have the opportunity of taking ENGL 209, Literary Magazine Practicum, and serving as genre editors or assistant editors on the staff of *Lake Effect*, the national literary journal published by the School of Humanities and Social Sciences at Penn State Erie, The Behrend College. This is a 1-credit course in which students may enroll for up to 8 credits over their time in the degree program.

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2014

Blue Sheet Item #: 43-04-037

Review Date: 01/13/2015

BD

Digital Media, Arts, and Technology

Penn State Erie, The Behrend College (DIGIT)

Sharon Dale, *in-charge*

Digital technology has transformed the way we live, interact, learn, and work. The interdisciplinary Digital Media, Arts, and Technology (DIGIT) major is designed for students who are curious about and want to explore the growing significance of technology in the modern world. DIGIT combines historical and theoretical course work with intensive practical training in the creation and use of digital media tools and computational systems. Foundational DIGIT courses familiarize students with the key concepts, methods, history, theories and practices of Digital Liberal Arts while a range of competency courses introduce them to industry-standard software applications alongside cutting edge tools that continue to emerge from the open source community. Combining the broad perspective of liberal arts training with in-demand technical skills, DIGIT incorporates either a capstone project or a digital media internship, in order to provide students with a successful transition from college to an increasingly technological job market.

Entrance Requirement: Students must earn C or better in ENGL 015 or ENGL 030 and COMM 270 to be eligible for entrance to the major.

For the B.A. degree in DIGIT a minimum of 120 credits is required.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

GENERAL EDUCATION: 45 credits
(6-12 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)
(See description of General Education in front of Bulletin.)

FIRST-YEAR SEMINAR:
(Included in ELECTIVES or GENERAL EDUCATION course selection)

UNITED STATES CULTURES AND INTERNATIONAL CULTURES:
(Included in GENERAL EDUCATION course selection or REQUIREMENTS FOR THE MAJOR)

WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

ELECTIVES: 8-15 credits

BACHELOR OF ARTS DEGREE REQUIREMENTS: 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.) (See description of Bachelor of Arts Degree Requirements in this bulletin.)

REQUIREMENTS FOR THE MAJOR: (48-49 credits)

(This includes 6-12 credits of General Education courses: 6 credits of GA courses for all categories; 0-4 credits of GQ courses for Data Visualization and Assessment category; 0-3 credits of GN courses for the Sound and Motion category; 0-6 credits of GS courses for the Modeling and Simulation/Human Computer Interaction category.)

PRESCRIBED COURSES: (21 credits)

ART 168 GA(3)[1], COMM 270(3), PHOTO 100 GA(3),[1] (Sem: 1-6)

DIGIT 100(3)[1] (Sem: 1-6)

DIGIT 110(3)[1], DIGIT 210(3)[1] (Sem: 2-6)

DIGIT 400(3)[1] (Sem: 3-6)

ADDITIONAL COURSES: (21-22 credits)

Select 3-4 credits from: CAS 426(3)[1] or ENGL 211W(3)[1] or HIST 301(3)[1] or PSYCH 301(4)[1] or PL SC 480(3)[1] (Sem: 5-8)

Select 3 credits from: DIGIT 494(3)[1] or DIGIT 495(3)[1] (Sem: 7-8)

Select 9 credits from one of the following categories: (Sem: 4-8)

(May double count with general education courses)

(Some courses may require prerequisites)

Digital Humanities: ART 203(3), ENGL 050 GA(3), ENGL 229(3), ENGL 420(3)[1], GEOG 160 GS(3) and GEOG 161(1), GEOG 363(3)[1], HIST 490/LST 490(3)[1]

Sound and Motion: COMM 242(3), COMM 481(3)[1], GD 100 GA(3), INART 050 GN(3), INART 236 GA(3), INART 258A, GA(3), MUSIC 008 GA(3), MUSIC 458(3)[1]

Modeling & Simulation/Human Computer Interaction: CMPSC 102(3), CMPSC 302(3) [1], DIGIT 430(3)[1], MIS 387(3)[1], PSYCH 244 GS(3), PSYCH 253 GS(3), PSYCH 444(3)[1]

Data Visualization & Assessment: CMPSC 203 GQ(4), DIGIT 410(3)[1], MIS 204(3), MIS 336(3)[1], MIS 345(3)[1], MIS 430(3)[1]

Select 6 credits from a second category not used above (Sem: 4-8)

SUPPORTING COURSES (6 credits)

Select 6 credits (with at least three credits at the 400-level) from the following list or in consultation with advisor. (Sem: 4-8)

Last Revised by the Department: Spring Semester 2015

Blue Sheet Item #: 43-06-024

Review Date: 04/14/2015

Economics

Penn State Erie, The Behrend College (ECNS)

The Economics major is a program of study with a liberal arts orientation. The broad liberal arts background serves as a foundation for advanced study in the methods and techniques of economic analysis. Use of mainframe and microcomputers as analytical and

problem-solving tools is emphasized in the program's upper-division courses. Students may choose upper-division courses in several areas of specialization, including business cycles and forecasting, economic theory, industrial organization, international economics, labor economics, managerial economics, and regional economics.

For the B.A. degree in Economics, a minimum of 122 credits is required. Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

GENERAL EDUCATION: 45 credits

(3 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in this bulletin.)

FIRST-YEAR SEMINAR:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

WRITING ACROSS THE CURRICULUM:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

ELECTIVES: 19 credits

BACHELOR OF ARTS DEGREE REQUIREMENTS: 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)

(See description of Bachelor of Arts Degree Requirements in this bulletin.)

REQUIREMENTS FOR THE MAJOR: 37 credits

(This includes 3 credits of General Education GWS courses.)

PRESCRIBED COURSES (19 credits)

ECON 102 GS(3), ECON 104 GS(3), ECON 302 GS(3), ECON 304 GS(3) (Sem: 1-6)

ENGL 202A GWS(3) (Sem: 3-6)

SCM 200(4) (Sem: 3-6)

ADDITIONAL COURSES (18 credits)

Select 18 credits in BECON, ECNS, or ECON above the 300 level, in consultation with an adviser. [Where appropriate toward a specialized undergraduate field of study, the student may petition the director of the School of Business to take up to a maximum of 6 credits in closely related fields toward a major.] (Sem: 3-8)

Last Revised by the Department: Summer Session 1998

Blue Sheet Item #: 26-02-034

Review Date: 01/30/01 (Editorial Change)

UCA Revision #1: 8/3/06

BD

Electrical and Computer Engineering Technology

Penn State Erie, The Behrend College (ECET)

This major prepares graduates for careers in such varied areas as electronics, microprocessors, computer hardware and software, communications, instrumentation and control, and power. The major consists of two options, one in Electrical Engineering Technology, the other in Computer Engineering Technology. Both options provide education in applied mathematics, physics, electrical and electronic circuit analysis and design, microprocessors, instrumentation and quality control. The Electrical Engineering Technology option provides specialty education in control theory, communication systems, and power systems. The Computer Engineering Technology option provides specialty education in software development, embedded computer systems, and networking. Both options in the major culminate with a capstone design project involving an actual design or manufacturing problem, often sponsored by industry. Graduates may qualify as engineering technologists working side-by-side with engineers, scientists, and other skilled workers in these capacities. Occupations include electrical and electronic systems design, microprocessor applications, instrumentation and control, computer programming, electrical testing, plant engineering, quality control, management, and technical sales and service.

Entrance to Major Requirements:

To be eligible for entrance to the Electrical and Computer Engineering Technology major, a student must have: 1) attained at least a 2.00 cumulative grade-point average; 2) completed MATH 081 or MATH 026, and MATH 082 or MATH 022, and MATH 083 or MATH 140, and PHYS 250, and earned a grade of C or better in each of these courses.

For the B.S. degree in Electrical and Computer Engineering Technology, a minimum of 128 credits is required. Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

This program is accredited by the Engineering Technology Accreditation Commission of ABET, www.abet.org.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

GENERAL EDUCATION: 45 credits

(24 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)
(See description of General Education in this bulletin.)

FIRST-YEAR SEMINAR:

(Included in PRESCRIBED COURSES course selection)

UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in GENERAL EDUCATION course selection)

WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

REQUIREMENTS FOR THE MAJOR: 107 credits

(This includes 24 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 6 credits of GWS courses; and 3 credits of GS courses.)

COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS): 89 credits

PRESCRIBED COURSES (57 credits)

CMPET 5(1), CMPET 117(3)[1], CMPET 120(1), CMPET 211(3), EET 101(3), EET 109(1), EET 114(4)[1], EET 118(1)[1], EET 212(4), EET 214(3), EET 215(1) (Sem: 1-4)

CAS 100 GWS(3), ENGL 202C GWS(3) (Sem: 3-6)

MATH 210 GQ(3), MATH 211 GQ(3) (Sem: 4-6)

EET 280(1) (Sem: 4-8)

CMPET 301(3)[1], CMPET 355(3)[1], EET 315(3)[1], EET 341(3)[1] (Sem: 5-6)

MGMT 409(3)[1] (Sem: 5-8)
EET 480(1)[1], EET 490(3)[1] (Sem: 7-8)

ADDITIONAL COURSES (32 credits)

EET 2(1) or ET 2(1) (Sem: 1-4)
EGT 101(1) and EGT 102(1) or EGT 119(2) (Sem: 1-4)
MATH 026 GQ(3)[1] or MATH 081 GQ(3)[1], MATH 022 GQ(3)[1] or MATH 082 GQ(3)[1],
MATH 083 GQ(4)[1] or MATH 140 GQ(4)[1] (Sem: 1-4)
ECON 102 GS(3) or ECON 104 GS(3) (Sem: 1-8)
CHEM 110 GN(3), CHEM 111 GN(1), PHYS 250 GN(4)[1], and 2 credits of science GN(2) or
PHYS 150 GN(3)[1], PHYS 151 GN(3)[1], and 4 credits of science GN(4), EET 450(3) or QC
450(3) (Sem: 5-8)
EET 275(3) or EET 220(2) and 1 credit in 200 level or higher of technical electives from
school-approved list (Sem: 4-8)

REQUIREMENTS FOR THE OPTION: 18 credits

ELECTRICAL ENGINEERING TECHNOLOGY OPTION: (18 credits)

PRESCRIBED COURSES (9 credits)

EET 330(3)[1] (Sem: 5-6)
EET 416(3)[1], EET 440(3)[1] (Sem: 7-8)

SUPPORTING COURSES AND RELATED AREAS (9 credits)[1]

Select 9 credits of technical electives at the 300 or 400 level from school-approved list
(Students may apply 6 credits of ROTC.) (Sem: 7-8)

COMPUTER ENGINEERING TECHNOLOGY OPTION: (18 credits)

PRESCRIBED COURSES (9 credits)

CMPET 333(3)[1] (Sem: 5-6)
CMPET 456(3)[1], CMPET 457(3)[1] (Sem: 7-8)

SUPPORTING COURSES AND RELATED AREAS (9 credits)[1]

Select 9 credits of technical electives at the 300 or 400 level from school-approved list
(Students may apply 6 credits of ROTC.) (Sem: 7-8)

[1] A student enrolled in this major must receive a grade of C or better, as specified in
Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2013

Blue Sheet Item #: 42-02-010

Review Date: 10/08/2013

UCA Revision #1: 8/3/06

BD

Electrical Engineering

Penn State Erie, The Behrend College (EE BD)

This major provides students with a strong foundation in electrical engineering through a combination of classroom study, projects, and laboratory experience. Analysis and design of electrical and computer systems are stressed. Built upon a core of science and mathematics courses, this major has the objective of educating graduates to be problem

solvers. Students acquire the ability to work as members of a team toward successful attainment of a common goal, preparing them for work in industry, or further study in graduate school. In addition, written and oral communication skills are developed from an early stage, culminating in a senior design project that stresses communication as well as engineering content.

In addition to completing a broad-based science and mathematics core, students pursue their interest in electrical engineering by studying the principles of electrical circuits and microelectronics, digital and computer systems, control and communications systems, and electromagnetic fields and waves. Students obtain a broad-based electrical engineering education that is specialized through the selection of technical electives courses. The student will be required to analyze and solve a significant electrical engineering design problem during the senior year.

Entrance Requirement: In addition to the Carnegie unit and minimum GPA requirements described by University policies, all students applying for entrance to any of the engineering majors at The Behrend College must have at least a 2.0 cumulative GPA by the end of the semester prior to applying for entrance to the major and have completed, with a minimum grade of C: CHEM 110 GN(3), MATH 140 GQ(4), MATH 141 GQ(4), and PHYS 211 GN(4). These courses must be completed by the end of the semester during which the admission to major process is carried out.

For the B.S. degree in Electrical Engineering, a minimum of 130 credits is required. Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

GENERAL EDUCATION: 45 credits
(21 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)
(See description of General Education in this bulletin.)

FIRST-YEAR SEMINAR:
(Included in REQUIREMENTS FOR THE MAJOR)

UNITED STATES CULTURES AND INTERNATIONAL CULTURES:
(Included in GENERAL EDUCATION course selection)

WRITING ACROSS THE CURRICULUM:
(Included in REQUIREMENTS FOR THE MAJOR)

REQUIREMENTS FOR THE MAJOR: 106 credits
(This includes 21 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GWS courses; 3 credits of GS courses.)

PRESCRIBED COURSES (91 credits)
CHEM 110 GN(3)[1], CHEM 111 GN(1), EDSGN 100S(3), CMPSC 201 GQ(3) (Sem: 1-2)
CMPEN 271(3)[1], CMPEN 275(1)[1], MATH 140 GQ(4)[1], MATH 141 GQ(4)[1], MATH 220 GQ(2-3)[1], MATH 230(4)[1], MATH 250(3)[1], PHYS 211 GN(4)[1], PHYS 212 GN(4), PHYS 214 GN(2) (Sem: 1-4)
EE 210(4)[1], EMCH 211(3), ENGL 202C GWS(3) (Sem: 3-4)
EE 310(4)[1], EE 312(3)[1], EE 313(4)[1], EE 316(3)[1], EE 331(3)[1], EE 352(4)[1], EE 380(3)[1], EE 383(1)[1], STAT 301(3)[1] (Sem: 5-6)
EE 360(3)[1], EE 387(3)[1], EE 400(3)[1], EE 401(3)[1] (Sem: 7-8)

ADDITIONAL COURSES (6 credits)
ECON 102 GS(3) or ECON 104 GS(3) (Sem: 1-6)
CMPSC 122(3) or EMCH 012(3) or ME 201(3) or ME 300(3) or PHYS 237(3) (Sem: 3-4)

SUPPORTING COURSES AND RELATED AREAS (9 credits)

Select 9 credits of technical courses from school-approved list.

(These credits must be selected to fulfill the engineering science and design requirements of the major.) (Sem: 7-8)

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Summer Session 2001

Blue Sheet Item #: 29-01-017

Review Date: 7/11/02

UCA Revision #1: 8/3/06

UCA Revision #2: 7/27/07

BD

Elementary and Early Childhood Education

Penn State Abington

Penn State Altoona

Penn State Berks

Penn State Erie, The Behrend College

University Park, College of Education (CEAED)

PROFESSOR STEPHANIE SERRIERE, *Director*

Not all options are available at every campus. Contact the campus you are interested in attending to determine which options are offered.

ELEMENTARY & EARLY CHILDHOOD EDUCATION. The Elementary and Early Childhood Education (ECEE) major prepares candidates to teach all content areas in Pre-Kindergarten through grade 4 (PK-4). Requirements for successful completion of the major include coursework specific to elementary and early childhood learning environments, child development, and field experiences in grades PK-4 classrooms, as well as content and teaching methods courses specific to teaching language and literacy, mathematics, science, and social studies. Students who successfully complete this major will have met all coursework and field experience requirements for the PK-4 Instructional I Certificate issued by the Pennsylvania Department of Education (PDE). In addition, they will have been prepared for the appropriate PRAXIS exams, which are the standardized assessment required by PDE for this certification.

Students must apply for admission to the major. Students interested in the major should contact their advisor and enroll in a C I 295 field experience, which features participation in the classroom.

Baccalaureate degree candidates must meet the following requirements 1-3 by the end of their third semester:

1. A minimum cumulative grade point average of 3.00.
2. Satisfaction of any basic-skills or entrance testing requirements as specified by the Pennsylvania Department of Education in force at the time of application for entrance to the major.

Requirements 3-8 must be met by the end of the fourth semester when students typically participate in the Entrance to Major process.

3. A grade of "C" or better in all specified courses.
4. Completion of an early field experience specified by the certification program.
5. Completion of a core of Education courses specified by the certification program.
6. Completion of additional credits as specified by the certification program.
7. Completion of at least 48 semester credit hours, including ENGL 015 GWS(3) or ENGL 030 GWS(3), six credits of quantification, and three credits of natural science.
8. Approval from the professional education adviser or the head of the pertinent certification program.

For the B.S. degree in Elementary & Early Childhood Education PK-4, a minimum of 127 credits is required.

GENERAL EDUCATION: 45 credits

(27 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)
(See description of General Education in this bulletin.)

FIRST YEAR SEMINAR:

(Included in GENERAL EDUCATION course selection)

UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

REQUIREMENTS FOR THE MAJOR: 109-110 credits **[1]**

(This includes 27 credits of General Education courses: 6 credits of GH courses, 9 credits of GN courses, 6 credits of GQ courses, 6 credits of GS)

PRESCRIBED COURSES (76 credits)

C I 295A(3), HD FS 229 GS(3) (Sem: 1-3)

C I 280 GH(3), EDPSY 014(3), EDTHP 115 US(3), MATH 200 GQ(3) (Sem: 1-4)

A ED 303(3), C I 495A(3), C I 495D(12), C I 495F(3), E C E 451(3), E C E 479(3), KINES 126(1.5), KINES 127(1.5), LL ED 400(3), LL ED 401(3), LL ED 402(3), MTHED 420(3), MUSIC 241(3), SCIED 458(3), SPLED 400(4), SPLED 403A(3), SS ED 430W(3) (Sem: 5-8)

ADDITIONAL COURSES (6-7 credits)

Select 3-4 credits from: EDPSY 101 GQ(3); STAT 100 GQ(3); STAT 200 GQ(4) (Sem: 1-4)
AND

Any MATH GQ course (Sem: 1-4)

SUPPORTING COURSES AND RELATED AREAS (27 credits)

Select 3 credits in of Economic Geography (GS;US;IL) (Sem: 1-4)

Select 3 credits in literature (GH) (Sem: 1-4)

Select 3 credits of US History (GS;US;IL) (Sem: 1-4)

Select 9 credits: 3 credits each (including one course with a lab) from biological science, earth science, and physical science (GN) (Sem: 1-6)

Select 3 credits on family and relationships from:

E C E 453(3), HD FS 315 US(3), HD FS 415(3), HD FS 418(3), HD FS 424 US(3), HD FS 431(3), HD FS 469U IL(3), SOC 030 GS(3), or WL ED 444(3) (Sem: 1-4)

Select 6 credits of educational selections from:

APLNG 484(3), APLNG 493 IL(3), C I 405(3), CMAS 465(3), DANCE 412(3), E C E 452(3), E C E 454(3), EDLDR 409(3), EDLDR 476(3), EDLDR 480(3), EDPSY 421(3), EDTHP 401 IL(3), EDTHP 411 US(3), EDTHP 412(3), EDTHP 416 US(3), EDTHP 420(3), EDTHP 427(3), EDTHP

430(3), EDTHP 435(3), EDTHP 440(3), EDTHP 441(3), EDTHP 447 US(3), EDUC 302(3), EDUC 466(3), EDUC 467(3), EDUC 468(3), HD FS 301(3), HD FS 311(3), HD FS 315 US(3), HD FS 330(6), HD FS 411(3), HD FS 412(3), HD FS 418(3), HD FS 424 US(3), HD FS 428(3), HD FS 429(3), HD FS 430(6), HD FS 432(3), HD FS 440(3), HD FS 447(3), HD FS 499 IL(1-12), LDT 400(3), LL ED 450(3), LL ED 462(3), LL ED 464(3), SPLED 401(4), SPLED 409A(3), SPLED 409B(3), SPLED 419(3), SPLED 454(4), SPLED 461(3), WL ED 400(3), WL ED 444(3) or WL ED 483(3) (Sem: 5-8)

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2016

Blue Sheet Item #: 45-01-054

Review Date: 8/23/2016

R & T: 01/14/2014

ED

English

Penn State Erie, The Behrend College (ELISH)

This major offers courses in literary and cultural studies, and in various forms of writing. Students majoring in English may select the Literature or the Professional Writing Option. Both options share a common core of 13 credits and provide a sound foundation in the liberal arts and opportunities to develop creative and analytical skills. Students in the Literature Option select courses from three separate areas--The Canon and Its Critics, Cultural Studies, and Globality and Literature--and develop a broad understanding of the ways in which literature works in various critical and cultural contexts. Students in the Professional Writing Option follow a sequence of courses designed to develop and enhance writing skills in areas directly relevant to business and technical applications.

For the B.A. degree in English, a minimum of 120 credits is required. Each student must earn at least a grade of C or above in all courses required under Common Requirements, Prescribed, Additional, and Supporting courses.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

GENERAL EDUCATION: 45 credits
(See description of General Education in this bulletin)

FIRST-YEAR SEMINAR:
(Included in ELECTIVES)

UNITED STATES CULTURES AND INTERNATIONAL CULTURES:
(Included in ELECTIVES or GENERAL EDUCATION course selection)

WRITING ACROSS THE CURRICULUM:
(Included in ELECTIVES or GENERAL EDUCATION course selection)

ELECTIVES: 6 credits

BACHELOR OF ARTS DEGREE REQUIREMENTS: 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)

(See description of Bachelor of Arts Degree Requirements in this bulletin)

REQUIREMENTS FOR THE MAJOR: 45-48 credits

COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS): 15 credits

PRESCRIBED COURSES (12 credits)

ENGL 200(3) (Sem: 3-4)

ENGL 312(3), ENGL 403(3) (Sem: 3-6)

ENGL 482W(3) (Sem: 6-8)

ADDITIONAL COURSES (3 credits)

ENGL 443(3) or ENGL 444(3) (Sem: 5-8)

REQUIREMENTS FOR THE OPTION: 30-33 credits

LITERATURE, FILM, AND CULTURE OPTION: 30-33 credits

PRESCRIBED COURSES (12-15 credits)

CMLIT 453(3), ENGL 420(3), PHIL 409(3) (Sem: 4-8)

ENGL 494(3-6)* (Sem: 7-8)

*If the 6-credit option is selected, 3 credits count toward the 400-level Additional Courses requirement.

ADDITIONAL COURSES (15 credits)

Select 3 credits from COMM 150 GA(3) or INART 5 GA(3) or INART 110 GA(3) (Sem: 1-8)

Select 6 credits at the 200 level or below from CMLIT or ENGL (except ENGL 050) (Sem: 1-8)

Select 6 credits at the 400 level CMLIT or ENGL courses (except 400-level creative writing workshops) (Sem: 5-8)

SUPPORTING COURSES AND RELATED AREAS (3 credits)

Select 3 credits from the following: ENGL 477(3), ENGL/WMNST 489(3), ENGL/WMNST 490 US;IL(3), ENGL 492/WMNST 491(3) (Sem: 5-8)

REQUIREMENTS FOR THE PROFESSIONAL WRITING OPTION: 30 credits

PRESCRIBED COURSES (12 credits)

ENGL 100(3), ENGL 215(3), (Sem: 1-4)

ENGL 417(3) (Sem: 5-8)

ENGL 495(3) (Sem: 7-8)

ADDITIONAL COURSES (15 credits)

ENGL 418(3) or ENGL 419(3) (Sem: 5-8)

Select 12 credits from the following list, with at least 9 credits at the 400 level:

COMM 260W(3); COMM 315(3), ENGL 262 GH(3) or ENGL 263 GH(3) or ENGL 265 GH(3);

ENGL 415(3), ENGL 420(3), ENGL 425(3), ENGL 439(3), ENGL 479(1-3) (Sem: 3-8)

SUPPORTING COURSES (3 credits)

COMM 1(1-3), COMM 2(1-3), COMM 320(3), COMM 370(3), COMM 406(3), COMM 460(3), COMM 471(3), MKTG 301(3) (Sem: 5-8)

Last Revised by the Department: Spring Semester 2012

Blue Sheet Item #: 40-06-044

Review Date: 04/10/2012

UCA Revision #2: 7/27/07

BC

Environmental Science

Penn State Erie, The Behrend College (ENVSC)

A.M. FOYLE, *in charge*

The B.S. in Environmental Science (ENVSC) employs the principles, processes, and methodologies of the life and physical sciences to develop an integrated understanding of the environment and the effects associated with human use of the Earth's natural resources. Students will work in interdisciplinary teams in a capstone course and in environmental research/internship projects attuned to Great Lakes, water resources, and energy resources issues. Students choosing the Environmental Field Science option will obtain additional strengths in field biology, geographic information systems, and environmental geoscience and field methods. Those choosing the Environmental Lab Science option will obtain additional strengths in analytical chemistry and environmental geochemistry. The curriculum permits additional specialization in allied areas through completion of minors in chemistry, biology, or statistics.

For the B.S. degree in Environmental Science, a minimum of 121 credits is required, with at least 15 credits at the 400 level. Each student must earn at least a grade of C in each 300- and 400-level prescribed, additional, and supporting course.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

GENERAL EDUCATION: 45 credits

(27 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in this bulletin.)

FIRST YEAR SEMINAR:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

ELECTIVES 0-1 credits

REQUIREMENTS FOR THE MAJOR: 102-103 credits

(This includes 27 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 6 credits of GS courses; 3 credits of GH courses; 3 credits of GWS courses)

COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS): 69-70 credits

PRESCRIBED COURSES (40 credits)

BIOL 110 GN(4)[1], BIOL 220W GN(4), CHEM 110 GN(3)[1], CHEM 111 GN(1), CHEM 112 GN(3), CHEM 113 GN(1), MATH 140 GQ(4)[1] (Sem: 1-2)

CHEM 202(3), ENGL 202C GWS(3), GEOG 160 GS(3), GEOG 161(1), MATH 141 GQ(4) (Sem: 3-4)

BIOL 402(3), ENVSC 400(3) (Sem: 5-8)

ADDITIONAL COURSES (23-24 credits)

CIVCM 211 GS(3) or SUST 200 GS(3) or PLSC 1 GS(3) (Sem: 1-2)

SCM 200 GQ(4) or STAT 200 GQ(4) or STAT 250 GQ(3) (Sem: 3-4)

EARTH 2 GN(3) or GEOG 10 GN(3) or GEOSC 1(3) (Sem: 3-5)

PHIL 103 GH(3) or PHIL 119 GH(3) or PHIL 132 GH(3) or STS 245 GS;IL(3) (Sem: 4-5)

PHYS 211 GN(4)[1] and PHYS 212 GN(4); or PHYS 250 GN(4)[1] and PHYS 251 GN(4) (Sem: 5-6)

ECON 102 GS(3) or ECON 104 GS(3) or GEOG 30 GS(3) or GEOG 126 GS(3) (Sem: 6-7)

SUPPORTING COURSES AND RELATED AREAS (6 credits)

Select 3 credits from BIOL, ENVSC, GEOG, GEOSC 494 (Research), 495 (Internship), or 496 (Independent Studies) (consult with advisor[81] (Sem: 5-6)

Select 3 credits from the Natural & Physical Sciences program list[81] (Sem: 7-8)

REQUIREMENTS FOR THE OPTION: 33 credits

ENVIRONMENTAL FIELD SCIENCE OPTION: (33 credits)

PRESCRIBED COURSES (12 credits)

BIOL 435(3), GEOG 363(3), GEOSC 303(3), GEOSC 452(3) (Sem: 5-8)

ADDITIONAL COURSES (9 credits)

CHEM 301(3) or EGEE 101 GN(3) or EGEE 102 GN(3) or STS 420(3) (Sem: 5-6)

GEOSC 451(3) or GEOSC 454(3) (Sem: 7-8)

Select 3 credits from any Biology 400-level field/lab course [1] or GEOSC 412(3) or GEOSC 418(3) (Sem: 7-8)

SUPPORTING COURSES AND RELATED AREAS (12 credits) [81]

Choose 12 credits from the Natural & Physical Sciences and/or the Social Sciences, Arts & Humanities program lists with not more than 6 credits from the latter list. (Students may apply 6 credits of basic ROTC.) (Sem: 4-8)

ENVIRONMENTAL LAB SCIENCE OPTION: (33 credits)

PRESCRIBED COURSES (15 credits)

MICRB 201(3), MICRB 202(2) (Sem: 4-6)

CHEM 203(3), CHEM 221(4), CHEM 301(3)[1] (Sem: 5-7)

ADDITIONAL COURSES (6 credits)

GEOSC 412(3) or GEOSC 418(3) or GEOSC 419(3) (Sem: 6-7)

GEOSC 451(3) or GEOSC 452(3) or STS 420(3) (Sem: 7-8)

SUPPORTING COURSES AND RELATED AREAS (12 credits) [81]

Choose 9 credits from the Natural & Physical Sciences and/or the Social Sciences, Arts & Humanities program lists with not more than 6 credits from the latter list. (Students may apply 6 credits of basic ROTC.) (Sem: 4-8)

Choose 3 credits at the 400-level from the Natural & Physical Sciences program list.(Sem 7-8)

[1] A student enrolled in this major must receive a grade of C or better in this course, as specified in Senate Policy 82-44.

[81] A maximum of 9 credits of Research (494), Internship (495), or Independent Study (496) may be applied toward credits for graduation in all options.

Last Revised by the Department: Spring Semester 2014

Blue Sheet Item #: 42-06-016

Finance

*Penn State Erie, The Behrend College (FNC)
Penn State World Campus*

The Finance major is a unique program that provides the student with a firm foundation in the principles of finance and its major areas: financial management, investments, and financial markets. The coursework is designed to lead to professional certification in financial analysis. Students have job opportunities in a variety of positions with mutual funds, brokerage firms, banks, and insurance companies, as well as positions in corporate finance.

The program provides students with the depth and breadth of knowledge necessary to prepare them for Level I of the Chartered Financial Analysts (CFA) Exam. The rigorous curriculum, including courses in finance, accounting, and economics, is based on the CFA Body of Knowledge developed through surveys of professionals involved in the practice of investment management. Students will be encouraged to take Level I of the CFA exam after graduation.

Entrance to Major Requirements:

Entry to the Finance major requires the completion of 5 entry-to-major courses: ACCTG 211(4); ECON 102 GS(3); ENGL 015 GWS(3) or ENGL 030 GWS(3); MATH 110 GQ(4) or MATH 140 GQ(4); STAT 200 GQ(4) or SCM 200(4), and a 2.00 or higher cumulative grade-point average.

For the B.S. degree in Finance, 120-122 credits are required. Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

GENERAL EDUCATION: 45 credits

(15 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)
(See description of General Education in this bulletin.)

FIRST-YEAR SEMINAR:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in GENERAL EDUCATION course selection)

WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

ELECTIVES: 0-1 credits

REQUIREMENTS FOR THE MAJOR: 89-92 credits

(This includes 15 credits of General Education courses: 6 credits of GQ courses; 6 credits of GS courses; 3 credits of GWS courses.)

PRESCRIBED COURSES (43 credits)

ACCTG 211(4), ECON 102 GS(3), ECON 104 GS(3), ENGL 202D GWS(3) (Sem: 3-4)
FIN 301(3)[1], MGMT 301(3)[1], MIS 204(3)[1], MKTG 301(3)[1], SCM 301(3)[1] (Sem: 3-6)
ACCTG 426(3)[1], FIN 420(3)[1], FIN 451(3)[1], FIN 471(3)[1] (Sem: 5-6)

MGMT 471W(3)[1] (Sem: 7-8)

ADDITIONAL COURSES (19-22 credits)

MATH 110 GQ(4) or MATH 140 GQ(4) (Sem: 1-2)

SCM 200 GQ(4) or STAT 200 GQ(4) (Sem: 3-4)

BA 241(2) and BA 242(2) or BA 243(4) (Sem: 3-6)

Select 4-7 credits from one of the following sequences: ACCTG 305(4)[1]; or ACCTG 371(4)[1] and ACCTG 472(3)[1]; or ACCTG 471(1)[1] and ACCTG 472(3)[1] (Sem: 5-6)

Select 3 credits from: ECON 304(3)[1], ECON 351(3)[1], ECON 442(3)[1], ECON 481(3)[1], or ECON 485(3)[1] (Sem: 7-8)

SUPPORTING COURSES AND RELATED AREAS (27 credits)

Select 15 credits from one of the approved electives course areas (see school list of approved courses). See the Admission section of the general information in the front of this *Bulletin* for the placement policy for Penn State foreign language courses. (Sem: 1-8)
Select 6 credits [1] from FIN or other business areas (see school list of approved courses). (Sem: 5-8)

Select 6 additional credits [1] from 400-level FIN courses, excluding FIN 494 and FIN 495 (Sem: 5-8)

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2014

Blue Sheet Item #: 43-02-014

Review Date: 10/7/2014

UCA Revision #1: 8/4/06

UCA Revision #2: 7/27/07

BD

General Arts and Sciences

Penn State Erie, The Behrend College (GAS)

In this interdisciplinary major students may pursue broad interests and develop their own specialized programs when their interests are not congruent with established programs. The B.A. degree in General Arts and Sciences can be a terminal degree, or students can prepare for graduate school, professional school, or employment in business, government, or industry.

The Liberal Studies option provides the most flexible undergraduate degree program in the University except for the Bachelor of Philosophy degree. Students can use the Liberal Studies option to structure a program of study around their individual interests and career plans and can develop background in areas where Penn State Erie, The Behrend College, does not currently offer majors.

For further information and a complete list of courses, contact the head of the Division of Humanities and Social Sciences.

For the B.A. degree in General Arts and Sciences, a minimum of 124 credits is required. Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

GENERAL EDUCATION: 45 credits
(See description of General Education in this bulletin.)

FIRST-YEAR SEMINAR:
(Included in ELECTIVES or GENERAL EDUCATION course selection)

UNITED STATES CULTURES AND INTERNATIONAL CULTURES:
(Included in ELECTIVES or GENERAL EDUCATION course selection)

WRITING ACROSS THE CURRICULUM:
(Included in ELECTIVES or GENERAL EDUCATION course selection)

ELECTIVES: 19 credits

BACHELOR OF ARTS DEGREE REQUIREMENTS: 24 credits
(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)
(See description of Bachelor of Arts Degree Requirements in this bulletin.)

REQUIREMENTS FOR THE MAJOR: 36 credits

COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS): 12 credits

SUPPORTING COURSES AND RELATED AREAS (12 credits)
Select 3 credits in each of the areas of arts, humanities, science/mathematics, and the social and behavioral sciences (Sem: 1-8)

REQUIREMENTS FOR THE OPTION: 24 credits

HUMANITIES OPTION: (24 credits)

SUPPORTING COURSES AND RELATED AREAS (24 credits)
Select 24 credits in humanities from those listed under humanities in the Bachelor of Arts Degree Requirements list, with at least 3 credits in each of three areas, including 15 credits at the 400 level (Sem: 1-8)

LIBERAL STUDIES OPTION: (24 credits)

SUPPORTING COURSES AND RELATED AREAS (24 credits)
(15 of these credits must be at the 400 level)
In this option, the student shall submit a proposal to the adviser listing his/her choice of subjects beyond those required in the Supporting Courses and Related Areas category. In consultation with the adviser and the General Arts and Sciences program head, the student may choose from any B.A. course offering of the University. Option must be approved no later than the end of the sixth semester. (Sem: 1-8)

SCIENCE/MATHEMATICS OPTION: (24 credits)

SUPPORTING COURSES AND RELATED AREAS (24 credits)
Select 24 credits in science/mathematics from those listed under science/mathematics in the Bachelor of Arts Degree Requirements list, with at least 3 credits in each of three areas, including 15 credits at the 400 level (Sem: 1-8)

SOCIAL AND BEHAVIORAL SCIENCES OPTION: (24 credits)

SUPPORTING COURSES AND RELATED AREAS (24 credits)
Select 24 credits in the social and behavioral sciences from those listed in the Bachelor of

Arts Degree Requirements list, with at least 3 credits in each of three areas, including 15 credits at the 400 level (Sem: 1-8)

Last Revised by the Department: Summer Session 1988

Blue Sheet Item #: 16-08-166

Review Date: 01/30/01(Editorial changes)

BD

History

Penn State Erie, The Behrend College (HSTBA)

The B.A. degree program in History focuses on the study of the evolution of American and European institutions. This program enables students to pursue history in the traditional mode as a study of written records.

For the B.A. degree in History, a minimum of 124 credits is required. Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

GENERAL EDUCATION: 45 credits
(3 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)
(See description of General Education in this bulletin.)

FIRST-YEAR SEMINAR:
(Included in ELECTIVES or GENERAL EDUCATION course selection)

UNITED STATES CULTURES AND INTERNATIONAL CULTURES:
(Included in ELECTIVES or GENERAL EDUCATION course selection)

WRITING ACROSS THE CURRICULUM:
(Included in the MAJOR Requirements)

ELECTIVES: 19 credits

BACHELOR OF ARTS DEGREE REQUIREMENTS: 24 credits
(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)
(See description of Bachelor of Arts Degree Requirements in this bulletin.)

REQUIREMENTS FOR THE MAJOR: 39 credits
(This includes 3 credits of General Education GWS courses.)

ADDITIONAL COURSES (30 credits)
Select 3 credits from: HIST 1 GH;IL(3) or HIST 10 GH;IL(3) (Sem: 1-2)
Select 9 credits from HIST 1 GH;IL(3), HIST 2 GH;IL(3), HIST 10 GH;IL(3), HIST 11 GH;IL(3), HIST 20 GH;US(3), HIST 21 GH;US(3) (Sem: 1-8)
Select 3 credits from: ENGL 202A GWS(3) or ENGL 202B GWS(3) (Sem: 3-6)
Select 3 credits from: HIST 301(3) or HIST 302(3) (Sem: 5-6)
Select 12 credits of HIST at the 400-level or ANTH 420(3); ANTH 492(3) (Sem: 5-8)

SUPPORTING COURSES AND RELATED AREAS (9 credits)
Select 3 credits in each of the area categories - United States, Europe, and World from

school-approved list (Sem: 1-8)

Last Revised by the Department: Fall Semester 2016

Blue Sheet Item #: 45-01-032

Review Date: 8/23/2016

BD

Industrial Engineering

Penn State Erie, The Behrend College (IESBD)

The undergraduate program in industrial engineering, being the first established in the world, has a long tradition of providing a strong, technical, hands-on education in design, control, and operation of manufacturing processes and systems. The curriculum provides a broad-based education in manufacturing, operations research and ergonomics through a base of mathematics, physical and engineering sciences, and laboratory and industrial experiences. It builds a strong foundation for the development of a professionally competent and versatile industrial engineer, able to function in a traditional manufacturing environment as well as in a much broader economy, including careers in financial services, communication, information technology, transportation, health care, consulting, or academia.

We expect our graduates to:

1. Participate in and lead cross-functional teams, designing, implementing and improving processes and systems in the manufacturing, service, or government sectors;
2. Work effectively in managerial and leadership positions;
3. Work and communicate effectively with internal and external team members in the global environment; and
4. Engage in continuous learning through varied work assignments, graduate school, professional training programs, and independent study.

The following outcomes are included in the courses taught in the program:

1. Management and Information Systems for Industrial Engineering; apply time value of money to make financial decisions and understand cost-accounting principles; understand probability concepts applicable to solve engineering problems; including reliability issues; conduct tests of hypotheses, create regression models and understand and apply statistical quality control methods such as process capability and control charts; formulate, solve and analyze real problems using Markov chains, network models, dynamic programming, queuing theory and inventory models; create simulation models of manufacturing and service systems and analyze simulation output; and gain an in-depth knowledge of implementation-related issues and theoretical aspects of database and Web-based operations related to industrial engineering.
2. Manufacturing Engineering: understand information contained in typical specifications and methods of product verification and conformance to specifications; and program flexible manufacturing equipment and system controllers; design logical manufacturing layouts and implement contemporary systems issues.
3. Human Factors: analyze and design both the job and the work site in a cost-effective manner, as well as measure the resulting output; understand and apply cognitive

systems engineering: identify visual, auditory, cognitive, perceptual and environmental aspects of human performance, perform task analysis and evaluate human-computer interfaces; and perform work measurement, develop an MTM analysis and carry out a work sampling study.

4. General: present engineering study results in technical reports and in oral presentations, demonstrate life-long learning by synthesizing information from several sources, work effectively in groups on case studies and projects, demonstrate knowledge of contemporary issues, understand professional and ethical responsibility and the impact of engineering decisions in a global and societal context; and design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability.

After completing courses required for the core and fundamental competencies in the major, students can choose two technical elective courses from the department list, out of which must be an I E course. In addition, the students must also complete the 3-credit capstone design course.

ENTRANCE TO MAJOR -- In addition to the minimum grade point average (GPA) requirements* described in the University Policies, all College of Engineering entrance to major course requirements must also be completed with a minimum grade of C: CHEM 110 (GN), MATH 140 (GQ), MATH 141 (GQ) and PHYS 211 (GN). All of these courses must be completed by the end of the semester during which the admission to major process is carried out.

*In the event that the major is under enrollment control, a higher minimum cumulative grade-point average is likely to be needed and students must be enrolled in the College of Engineering or Division of Undergraduate Studies at the time of confirming their major choice.

For the B.S. degree in Industrial Engineering, a minimum of 129 credits is required.

Scheduling Recommendation by Semester Standing given like (Sem:1-2)

GENERAL EDUCATION: 45 credits
(27 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)
(See description of General Education in this bulletin.)

FIRST-YEAR SEMINAR:
(Included in REQUIREMENTS FOR THE MAJOR)

UNITED STATES CULTURES AND INTERNATIONAL CULTURES:
(Included in GENERAL EDUCATION course selection)

WRITING ACROSS THE CURRICULUM:
(Included in REQUIREMENTS FOR THE MAJOR)

REQUIREMENTS FOR THE MAJOR: 111 credits
(This includes 27 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 9 credits of GWS courses.)

PRESCRIBED COURSES (77 credits)
CHEM 110 GN(3)[1], CHEM 111 GN(1), EDSGN 100(3), MATH 140 GQ(4)[1], MATH 141 GQ(4)[1], PHYS 211 GN(4)[1] (Sem: 1-2)
EMCH 210(5)[1], ENGL 202C GWS(3), MATH 220 GQ(2-3), MATH 231(2), MATH 250(3), PHYS 212 GN(4) (Sem: 3-4)
IE 302(3)[1], IE 305(3)[1], IE 322(3)[1], IE 323(3)[1], IE 327(3)[1], IE 330(3)[1], IE 405(3)[1], MATSE 259(3) (Sem: 5-6)

IE 425(3), IE 453(3), IE 460(3), IE 470(3), IE 480(3) (Sem: 7-8)

ADDITIONAL COURSES (16 credits)

Select 1 credit of First-Year Seminar (Sem: 1-2)

ENGL 15 GWS(3) or ENGL 30 GWS(3) (Sem: 1-2)

CAS 100A GWS(3) or CAS 100B GWS(3) (Sem: 3-4)

CMPSC 201 GQ(3) or CMPSC 202 GQ(3) (Sem: 1-2)

ECON 102 GS(3) or ECON 104 GS(3) (Sem: 1-2)

IE 408(3), IE 418(3), or IE 419(3) (Sem: 7-8) (*The course not taken to satisfy this requirement can be taken as a track elective. Please see the list in (iv) of section C.*)

SUPPORTING COURSES AND RELATED AREAS (18 credits)

Select 3 credits as a science selection from department list (Sem: 3-4)

Select 6 credits as non-major electives from department list (Sem: 3-8)

Select 3 credits in manufacturing processes from department list. (Sem: 5-6) (*The courses not taken to satisfy this requirement can be taken*

as a technical elective. Please see the department list)

Select 6 credits of technical electives from the department list, out of which at least 3 credits must be I E credits.

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2009

Blue Sheet Item #: 37-06-041

Review Date: 4/14/09

UCA Revision #1: 8/8/06

UCA Revision #2: 7/27/07

EN

Interdisciplinary Business with Engineering Studies

Penn State Erie, The Behrend College (IBE)

This major provides students with an interdisciplinary program containing both business and engineering course content. The major includes a set of core courses in both business and engineering/engineering technology that should enable a graduate to function effectively in a technical business environment. In addition, a student will be able to choose, from a selection of modules, a set of courses or electives designed to enable a student to function in a specific business or technical area. The modules provide an entry-level set of skills that will help graduates provide immediate value as an employee. The modules or set of electives will be approved by both the Schools of Business and Engineering.

In addition to completing the broad-based core in business, science, and engineering, students acquire the ability to work as members of a team toward successful attainment of a common goal, preparing them to work in businesses or to further their study in graduate school. The program develops written and oral communication skills from an early stage and culminates in a capstone course sequence consisting of a project that stresses communication, strategic product development, and product realization.

Entrance to Major Requirements:

Entry to the Interdisciplinary Business with Engineering Studies (IBE) major requires the completion of 5 entry-to-major courses: ACCTG 211(4); ECON 102 GS(3); ENGL 15 GWS(3) or ENGL 30 GWS(3); MATH 110 GQ(4) or MATH 140 GQ(4); STAT 200 GQ(4) or SCM 200(4), and a 2.00 or higher cumulative grade-point average.

For the B.S. degree in Interdisciplinary Business with Engineering Studies, a minimum of 127 credits are required.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

GENERAL EDUCATION: 45 credits

(24 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in front of *Bulletin*.)

FIRST-YEAR SEMINAR:

(Included in REQUIREMENTS FOR THE MAJOR)

UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in GENERAL EDUCATION course selection or REQUIREMENTS FOR THE MAJOR)

WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

REQUIREMENTS FOR THE MAJOR: 106-107 credits

(This includes 24 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses, 6 credits of GS courses, 3 credits of GWS courses.)

PRESCRIBED COURSES: (65 credits)

CHEM 110 GN(3), CMPSC 201 GQ(3)[1], EGT 120(3)[1], ECON 102 GS(3)[1], EDSGN 100S(3), MATH 140 GQ(4)[1], MATH 141 GQ(4)[1], (Sem: 1-2)

ACCTG 211(4)[1], ENGL 202C GWS(3), PHYS 211 GN(4), PHYS 212 GN(4) (Sem: 3-4)

ECON 104 GS(3)[1], FIN 301(3)[1], MGMT 301(3)[1], MIS 204(3)[1], MKTG 301(3)[1], SCM 301(3)[1] (Sem: 5-6)

MGMT 410(3)[1], MGMT 475(3)[1], MGMT 476(3)[1] (Sem: 7-8)

ADDITIONAL COURSES: (26 credits)[1]

EMCH 211(3) or MCHT 111(3), SCM 200 GQ(4) or STAT 200 GQ(4) (Sem: 3-4)

BA 241(2) and BA 242(2) or BA 243(4) (Sem: 3-6)

EE 211(3) or EET 101(3) (Sem: 5-6)

CMPET 117(3) or CMPEN 271(3) (Sem: 5-6)

EMCH 213(3) or MCHT 213(3) (Sem: 5-6)

ME 300(3) or MET 330(3) (Sem: 5-6)

Select 3 credits from ECON 470 IL(3), ECON 473 IL(3), FIN 471(3), MKTG 445 IL(3), MGMT 461 IL(3) or other 400-level international business course. (Sem: 7-8)

SUPPORTING COURSES AND RELATED AREAS: (15-16 credits)

Select one module from School Approved List of Modules 1-5 (15-16 credits) (Sem: 5-8)

Except where noted, courses taken to satisfy General Education requirements may not be used to satisfy module requirements.

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2010

Blue Sheet Item #: 39-01-057

Review Date: 08/24/2010

BD

International Business

Penn State Erie, The Behrend College (INT B)

The International Business major is designed to prepare students for the increasingly international nature of business. Compared to other business majors, this one provides greater emphasis on knowledge and skills that are needed to conduct business in an international setting. This includes issues concerned with accomplishing organizational objectives through the coordination of human, material, information, and financial resources across national boundaries. In addition to studying the core business courses, students in this major will receive a broad exposure to the complexity of international business through required course work in international business, international culture, a foreign language, and a study abroad experience. In addition to preparing students for an international business environment, the major aims to provide them with knowledge of a specific business discipline by requiring the completion of all the requirements for a second business major. As a result, students meet the University requirements for a concurrent major. Graduates of the INT B major should be better prepared to function effectively as employees of small businesses with developing international operations or as members of larger business organizations with extensive global operations.

Entrance to Major Requirements:

Entry to the International Business major requires the completion of 5 entry-to-major courses: ACCTG 211(4); ECON 102 GS(3); ENGL 15 GWS(3) or ENGL 30 GWS(3); MATH 110 GQ(4) or MATH 140 GQ(4); STAT 200 GQ(4) or SCM 200(4), and a 2.00 or higher cumulative grade-point average.

For the B.S. degree in International Business (in conjunction with a second business major), a minimum of 122 credits is required.

Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

GENERAL EDUCATION: 45 credits

(15 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)
(See description of General Education in this bulletin.)

FIRST-YEAR SEMINAR:

(Included in ELECTIVES)

UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in GENERAL EDUCATION and REQUIREMENTS FOR THE MAJOR course selections)

WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR course selections)

ELECTIVES: 1 credit

REQUIREMENTS FOR THE MAJOR: 91 credits

(This includes 15 credits of General Education courses: 6 credits of GQ courses, 6 credits of GS courses, 3 credits of GWS courses.)

PRESCRIBED COURSES (31 credits)

ACCTG 211(4), ECON 102 GS(3), ECON 104 GS(3), ENGL 202D GWS(3) (Sem: 3-4)

FIN 301(3)[1], MGMT 301(3)[1], MIS 204(3), MKTG 301(3)[1], SCM 301(3)[1] (Sem: 3-6)
MGMT 471W(3)[1] (Sem: 7-8)

ADDITIONAL COURSES (24 credits)

MATH 110 GQ(4) or MATH 140 GQ(4) (Sem: 1-2)

SCM 200 GQ(4) or STAT 200 GQ(4) (Sem: 3-4)

BA 241(2) and BA 242(2) or BA 243(4) (Sem: 3-6)

Select 12 credits from ECON 470 IL(3)[1], ECON 473 IL(3)[1], FIN 471(3)[1], MGMT 461 IL(3)[1], MKTG 445 IL(3)[1], or other 300- or 400-level international business course [1] in consultation with adviser (Sem: 5-8)

SUPPORTING COURSES AND RELATED AREAS (36 credits)

Select 15 credits in a foreign language and culture (Sem: 1-6)

Select a minimum of 18 credits from one business supporting course group in consultation with adviser. Students must complete the requirements for a second School of Business major (Sem: 5-8)

Select 3 credits from school-approved, non-business Education Abroad courses (Sem: 5-8)

[**Note:** Students must attain third-level proficiency in a single foreign language (0-12 credits) and select 3-15 credits from the school-approved list of non-business international courses. See general information section of the *Bulletin* for the Penn State placement policy on foreign languages. Students receiving advanced placement in foreign language may substitute courses from school-approved foreign language and culture course list to complete the credits for this requirement.]

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2010

Blue Sheet Item #: 39-01-058

Review Date: 08/24/2010

UCA Revision #1: 8/8/06

UCA Revision #2: 7/27/07

BD

Management Information Systems

Penn State Erie, The Behrend College (MISBD)

The MIS Major prepares students for typical IT-related jobs such as programmer/analyst, systems analyst, data analyst, database administrator, team leader, project manager, consultant, and MIS manager. Since the focus of such jobs is on the application of information technology to business problems and opportunities, the MIS curriculum integrates three main areas of study.

In the first area, students take core business courses in order to understand organizational processes and user requirements. In the second area, students take computer science courses in order to understand information technologies and to develop technical competencies. In the third area, students take core MIS courses in the areas of database management systems, systems analysis, and systems design and development where the focus is on learning tools, processes, and techniques required for successful application of information technology to business problems. These core

courses are supplemented with a variety of electives and a required, and very useful, internship experience.

BUSINESS ANALYST OPTION. The Business Analyst option focuses on educating students with principles, methods and tools related to business processes, enterprise systems, business reporting for decision-making and web technologies applications. The option provides a sharper focus for students who wish to pursue their careers emphasizing ERP, business process management, business intelligence, and web technologies.

DATA ANALYST OPTION. The Data Analyst option focuses on educating students with principles, methods and tools related to business analytics, business intelligence, data warehousing, and big data. The option provides the fundamental knowledge and skills in the area of analytics that draws on multiple areas including decision support systems, data mining, database technology, data visualization, and advances in large-scale computing. Students will gain skills needed to support data-driven decision-making for tackling business problems that often cut across conventional disciplinary boundaries and involve a blend business and information technology. The courses in this option are designed to convey key principles through projects and exercises that involve hands-on experiential learning using realistic datasets and applications. The option will provide a sharper focus for students who wish to pursue their careers emphasizing data analytics with applications in public and private sectors.

SYSTEMS ANALYST OPTION. The Systems Analyst option focuses on educating students with principles, methods and tools related to systems design, systems development, programming tools, and IT systems architecture. The option provides a sharper focus for students who wish to pursue their careers emphasizing the design and development of new information systems.

Entrance to Major Requirements:

Entry to the Management Information Systems major requires the completion of 5 entry-to-major courses: ACCTG 211(4); ECON 102 GS(3); ENGL 15 GWS(3) or ENGL 30 GWS(3); MATH 110 GQ(4) or MATH 140 GQ(4); STAT 200 GQ(4) or SCM 200(4), and a 2.00 or higher cumulative grade-point average.

For the B.S. degree in Management Information Systems, a minimum of 120 credits is required. Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

GENERAL EDUCATION: 45 credits

(15 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in this bulletin.)

FIRST-YEAR SEMINAR:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

ELECTIVES: 0-1 credits

COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS): 88-91 credits

(This includes 15 credits of General Education courses: 6 credits of GQ courses; 6 credits of GS courses; 3 credits of GWS courses.)

PRESCRIBED COURSES (40 credits)

ACCTG 211(4), ECON 102 GS(3), ECON 104 GS(3) (Sem: 3-6)

MKTG 301(3)[1], SCM 301(3)[1] (Sem: 3-6)

FIN 301(3)[1], MGMT 301(3)[1], MGMT 410(3)[1], MGMT 471W(3)[1], MIS 204(3), MIS 336(3)[1], MIS 430(3)[1] (Sem: 5-6)

MIS 495(3)[1] (Sem: 7-8)

ADDITIONAL COURSES (18 credits)

MATH 110 GQ(4) or MATH 140 GQ(4) (Sem: 1-2)

SCM 200 GQ(4) or STAT 200 GQ(4); ENGL 202C GWS(3) or ENGL 202D GWS(3) (Sem: 3-4)

BA 241(2) and BA 242(2) or BA 243(4) (Sem: 3-6)

Select 3 credits from ECON 470 IL(3)[1], ECON 473 IL(3)[1], FIN 471(3)[1], MGMT 461 IL(3)[1], MKTG 445 IL(3)[1], or other 400-level international business courses[1] (Sem: 7-8)

REQUIREMENTS FOR THE OPTION (31-34 credits)**BUSINESS ANALYST OPTION:** 31 credits**PRESCRIBED COURSES** (7 credits)

MIS 404 (3)[1], MIS 445 (4)[1]

SUPPORTING COURSES AND RELATED AREAS (24 credits)

Select 3 credits from MIS 387 (3)[1] or MIS 470 (4)[1]

Select any combination of 6 credits from the non-business supporting course list for the major. (Sem: 1-8)

Select 3 credits in programming courses (Sem: 3-8)

Select 12 credits[1] from 300- or 400-level MIS, or other business supporting course areas (see school list of approved courses) (Sem: 5-8)

DATA ANALYST OPTION (31-33 credits)**PRESCRIBED COURSES** (13 credits)

MIS 345(3)[1], MIS 445(4)[1], MIS 447(3)[1], MIS 494(3)[1]

SUPPORTING COURSES AND RELATED AREAS (18-20)

Select 3 credits in programming courses [1] (Sem: 3-8)

Select any combination of 6-7 credits from Software Engineering or Computer Science or 300- or 400-level MIS or business supporting or non-business supporting course list for the major. (Sem: 1-8)

Select any combination of 9-10 credits from Software Engineering or Computer Science or 300- or 400-level MIS, or other business supporting course areas (see school list of approved courses) (Sem: 5-8)

SYSTEMS ANALYST OPTION: 31-34 credits**PRESCRIBED COURSES** (4 credits)

MIS 435 (4)[1]

SUPPORTING COURSES AND RELATED AREAS (27-30 credits)

Select any combination of 6-7 credits from the non-business supporting course list for the major. (Sem: 1-8)

Select 9 credits in programming courses taken from two different languages (Sem: 3-8)

Select 6-7 credits[1] of 300- or 400-level courses in Computer Science, or MIS in consultation with adviser (see school list of approved courses) (Sem: 5-8)

Select 6-7 credits[1] from 300- or 400-level MIS, or other business supporting course areas (see school list of approved courses) (Sem: 5-8)

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2016

Blue Sheet Item #: 44-05-009

Review Date: 2/23/2016

UCA Revision #1: 8/20/06

UCA Revision #2: 7/27/07

BD

Marketing

Penn State Erie, The Behrend College (MRKTG)

The objective of the Marketing major is to provide professional education to students leading to careers in business, government, and non-profit organizations. Typically, graduates are employed in business-to-business marketing, management, sales management, retailing, marketing research, digital marketing, and brand management. The major provides a solid foundation in marketing practice, such as analyzing and understanding the needs and wants of present and potential customers, designing appropriate product offerings, establishing pricing policies, developing communication strategies, devising efficient distribution strategies, researching marketing data for the above functions, and coordinating marketing programs with other functional areas of business.

Entrance to Major Requirements:

Entry to the Marketing major requires the completion of 5 entry-to-major courses: ACCTG 211(4); ECON 102 GS(3); ENGL 15 GWS(3) or ENGL 30 GWS(3); MATH 110 GQ(4) or MATH 140 GQ(4); STAT 200 GQ(4) or SCM 200(4), and a 2.00 or higher cumulative grade-point average.

For the B.S. degree in Marketing, a minimum of 121 credits is required. Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

Scheduling Recommendations by Semester Standing given like (Sem: 1-2)

GENERAL EDUCATION: 45 credits

(15 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)
(See description of General Education in this bulletin.)

FIRST-YEAR SEMINAR:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in GENERAL EDUCATION course selection or REQUIREMENTS FOR THE MAJOR)

WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

REQUIREMENTS FOR THE MAJOR: 91 credits

(This includes 15 credits of General Education courses: 6 credits of GQ courses; 6 credits of GS courses; 3 credits of GWS courses.)

PRESCRIBED COURSES (43 credits)

ACCTG 211(4), ECON 102 GS(3), ECON 104 GS(3), ENGL 202D GWS(3) (Sem: 3-4)
SCM 301(3)[1] (Sem:3-6)
MIS 204(3), MKTG 301(3)[1], MKTG 342(3), MKTG 343(3)[1], MKTG 344(3)[1], MKTG
441(3)[1] (Sem: 5-6)
FIN 301(3)[1], MGMT 301(3)[1], MGMT 471W(3) (Sem: 7-8)

ADDITIONAL COURSES (30 credits)

Select 4 credits from: MATH 110 GQ(4)[1] or MATH 140 GQ(4)[1] (Sem: 1-2)

Select 4 credits from: SCM 200 GQ(4)[1] or STAT 200 GQ(4)[1] (Sem: 3-4)

Select 4 credits from: BA 241(2) and BA 242(2) or BA 243(4) (Sem: 3-6)

Select 3 credits from: ECON 470 IL(3)[1], ECON 473 IL(3)[1], FIN 471(3)[1], MGMT 461
IL(3)[1],

MKTG 445 IL(3)[1], or other 400-level international business courses (Sem: 5-8)

Select 15 credits of Marketing electives from: MKTG 327(3)[1], MKTG 410(3)[1], MKTG
422(3)[1], MKTG 445 IL(3)[1], MKTG 475(3)[1], MKTG 478(3)[1], MKTG 480(3)[1], MKTG
485(3)[1], MKTG 494(1-12)[1], MKTG 495(1-18)[1], or MKTG 497(1-9)[1] (Sem: 5-8)

SUPPORTING COURSES AND RELATED AREAS (18 credits)

Select 18 credits from an approved specialization area including: any business
concentration or major field and any non-business concentration or major field. Note: all
credits do not need to be chosen from any one concentration area. (Sem: 1-8)

[1] A student enrolled in this major must receive a grade of C or better, as specified in
Senate Policy 82-44.

Last Revised by the Department: Spring 2017

Blue Sheet Item #: 45-06-007

Review Date: 4/4/2017

UCA Revision #1: 8/9/06

UCA Revision #2: 7/30/07

BD

Mathematics

Penn State Erie, The Behrend College (MTHBD)

This major builds a foundation in mathematics with emphasis on the applications of
mathematics and to the development of problem-solving skills. The major has four
options that share a common core of mathematics courses for the first two years. The
options are Applied Mathematics, Business, Computer Science, and Pure Mathematics.
They allow students to concentrate on developing mathematical skills suitable either for
entry level positions in areas including applied mathematics, actuarial sciences, statistics
and computer programming, or for graduate studies in mathematics and related fields.
Students, with the assistance of a faculty adviser, should select an option in their
sophomore year. In addition, students are strongly encouraged to participate in faculty
supervised research.

Entrance to Major Requirements

In order to be eligible for entrance to the Mathematics major, a student must have: 1)
attained at least a 2.00 cumulative grade point average; and 2) completed MATH 140
GQ(4) and MATH 141 GQ(4) and earned a grade of C or better in each of these courses.

For the B.S. degree in Mathematics, a minimum of 120 credits is required. A student enrolled in this major must earn at least a grade of C in each 300- and 400-level course in the major.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

GENERAL EDUCATION: 45 credits

(18-24 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)
(See description of General Education in this *bulletin*.)

FIRST-YEAR SEMINAR:

(Included in REQUIREMENTS FOR THE MAJOR or in ELECTIVES)

UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in GENERAL EDUCATION course selections)

WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

ELECTIVES: 7-11 credits

REQUIREMENTS FOR THE MAJOR: 85-92 credits

(This includes 18-24 credits of General Education courses; 9 credits of GN courses; 6 credits of GQ courses; 0-6 credits of GS courses; 3 credits of GWS courses.)

COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS): 49 credits

PRESCRIBED COURSES (40 credits)

CMPSC 121 GQ(3)[\[1\]](#), MATH 140 GQ(4)[\[1\]](#), MATH 141 GQ(4)[\[1\]](#) (Sem: 1-2)

CMPSC 122 GQ(3)[\[1\]](#), MATH 311W(4)[\[1\]](#) (Sem: 3-4)

STAT 301(3)[\[1\]](#) (Sem: 3-6)

MATH 220 GQ(2)[\[1\]](#), MATH 230(4)[\[1\]](#), MATH 251(4)[\[1\]](#) (Sem: 3-8)

ENGL 202C GWS(3) (Sem: 5-6)

MATH 312(3)[\[1\]](#), STAT 401(3)[\[1\]](#) (Sem: 5-8)

ADDITIONAL COURSES (9 credits)

Select 1 credit of GN designated course and 8 additional credits in one of the following sequences:

a. BIOL 110 GN(4), BIOL 220W GN(4)(Sem: 1-4)

b. CHEM 110 GN(3), CHEM 111 GN(I), CHEM 112 GN(3), CHEM 113 GN(I) (Sem: 1-4)

c. PHYS 211 GN(4), PHYS 212 GN(4) (Sem: 1-4)

d. PHYS 250 GN(4), PHYS 251 GN(4) (Sem: 1-4)

REQUIREMENTS FOR THE OPTION: 36-43 credits[\[1\]](#)

APPLIED MATHEMATICS OPTION: (36 credits)[\[1\]](#)

ADDITIONAL COURSES (27 credits)

Select 6 credits from: CMPSC 221(3) or higher, except CMPSC 360 (Sem: 3-8)

Select 15 credits from MATH 310(3), MATH 412(3), MATH 449(3), MATH 455(3), MATH 456(3), MATH 482(3), STAT 414(3), STAT 461(3), STAT 462(3), STAT 464(3), STAT 466(3) (Sem: 5-8)

Select 6 credits from MATH 421(3), MATH 426(3), MATH 427(3), MATH 429(3), MATH 435(3), MATH 436(3), MATH 465(3) (Sem: 5-8)

SUPPORTING COURSES AND RELATED AREAS (9 credits)

Select 9 credits from a school-approved list (Sem: 3-8)

BUSINESS OPTION: (43 credits)[\[1\]](#)

(A maximum of 30 credits through the School of Business may be used to fulfill General

Education, Major Requirements and Option Requirements.)

PRESCRIBED COURSES (13 credits)

ACCTG 211(4), ECON 102 GS(3), ECON 104 GS(3) (Sem: 1-6)

MIS 204(3) (Sem: 3-6)

ADDITIONAL COURSES (24 credits)

Select 6 credits from ECON 481(3), ECON 485(3), FIN 301(3), FIN 405(3), FIN 420(3), FIN 427(3), MGMT 301(3), MGMT 331(3), MGMT 341(3), MKTG 301(3), SCM 310(3) (Sem: 3-8)

Select 6 credits from CMPSC 221(3) or higher, except CMPSC 360, and MIS 336(3) (Sem: 3-8)

Select 6 credits from MATH 482(3), MIS 336(3), MIS 430(3), MIS 435(4), MIS 445(3), STAT 414(3), STAT 461(3), STAT 462(3), STAT 464(3), STAT 466(3) (Sem: 3-8)

Select 6 credits from MATH 421(3), MATH 426(3), MATH 427(3), MATH 429(3), MATH 435(3), MATH 436(3), MATH 465(3) (Sem: 3-8)

SUPPORTING COURSES AND RELATED AREAS (6 credits)

Select 6 credits from a school-approved list (Sem: 3-8)

COMPUTER SCIENCE OPTION: (36 credits)**[1]**

PRESCRIBED COURSES (6 credits)

CMPSC 455(3), CMPSC 465(3) (Sem: 5-8)

ADDITIONAL COURSES (18 credits)

CMPSC 221(3) or SWENG 311(3) (Sem: 3-6)

CMPSC 312(3) or CMPEN 351(3) (Sem: 3-6)

Select 12 credits from CMPSC courses at the 300- and 400-level (Sem: 3-8)

SUPPORTING COURSES AND RELATED AREAS (12 credits)

Select 12 credits from a school-approved list (Sem: 3-8)

PURE MATHEMATICS OPTION: (36 credits)**[1]**

ADDITIONAL COURSES (27 credits)

Select 18 credits from MATH 310(3), MATH 412(3), MATH 421(3), MATH 426(3), MATH 427(3), MATH 429(3), MATH 435(3), MATH 436(3), MATH 455(3), MATH 456(3), MATH 465(3), MATH 482(3), STAT 414(3), STAT 461(3), STAT 462(3), STAT 464(3), and STAT 466(3) (Sem: 3-8)

Select 9 credits from MATH 403(3), MATH 421(3), MATH 429(3), MATH 435(3) (Sem: 5-8)

SUPPORTING COURSES AND RELATED AREAS (9 credits)

Select 9 credits from a school-approved list (Sem: 3-8)

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 42-01-023

Review Date: 08/20/13

UCA Revision #1: 8/9/06

UCA Revision #2: 7/30/07

BD

Mechanical Engineering

Penn State Berks (ME BL)

Penn State Erie, The Behrend College (ME BD)

Penn State Harrisburg (ME CA)

Built upon a broad foundation in physics, chemistry, and mathematics, this major has the objective of educating graduates to be problem solvers. Graduates of this program will have had opportunities to learn about applying scientific principles, engineering analysis, and engineering design to solve unstructured problems that are typical of those found in mechanical engineering. The major helps prepare graduates for a lifelong productive career, whether they choose professional practice, graduate school, or some other career path. Graduates will have had opportunities to learn how to work with others toward a common goal, to clearly express their ideas in written and verbal form, and to be independent and capable of adapting to the continuously changing technology of the work environment.

After completing the fundamental science core, students may pursue their interest in mechanical engineering by studying fluid and solid mechanics, engineering materials and their properties, thermodynamics and heat transfer, computer-aided design, kinematics and dynamics of machine elements, machine design, finite elements, control systems, electricity, and electronic instrumentation and machinery. The students will be required to analyze and solve a significant mechanical engineering design problem during their senior year.

Entrance Requirement: In addition to the Carnegie unit and minimum GPA requirements* described by University policies, all students applying for entrance to any of the engineering majors at Behrend, Berks, or Capital college must have at least a 2.0 cumulative GPA by the end of the semester prior to applying for entrance to the major and have completed, with a minimum grade of C: CHEM 110 GN(3), MATH 140 GQ(4), MATH 141 GQ(4), and PHYS 211 GN(4). These courses must be completed by the end of the semester during which the admission to major process is carried out.

*In the event that the major is under enrollment control, a higher minimum cumulative grade-point average is likely to be needed.

For the B.S. degree in Mechanical Engineering, a minimum of 131 credits is required. Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

GENERAL EDUCATION: 45 credits

(21 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in this bulletin.)

FIRST-YEAR SEMINAR:

(Included in REQUIREMENTS FOR THE MAJOR)

UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in GENERAL EDUCATION course selection)

WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

REQUIREMENTS FOR THE MAJOR: 107-108 credits

(This includes 21 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 3 credits of GWS courses.)

PRESCRIBED COURSES (88-89 credits)

CHEM 110 GN(3)[1], EDSGN 100S(3) (Sem: 1-2)

EE 211(3), EMCH 211(3)[1], EMCH 212(3)[1], EMCH 213(3)[1], ME 300(3)[1], MATH 140 GQ(4)[1], MATH 141 GQ(4)[1], MATH 220(2-3)[1], MATH 230(4), MATH 251(4)[1], PHYS 211 GN(4)[1], PHYS 212 GN(4) (Sem: 1-4)

CMPSC 200 GQ(3), ENGL 202C GWS(3) (Sem: 3-6)

ME 320(3)[1], ME 345W(4)[1], ME 349(3)[1], ME 357(3)[1], ME 365(1)[1], ME 367(3)[1], ME 380(3)[1], ME 410(3)[1] (Sem: 5-6)

ME 448(3)[1], ME 449(3)[1], ME 468(3)[1], MATSE 259(3)[1] (Sem: 7-8)

ADDITIONAL COURSES (6 credits)

ECON 102 GS(3) or ECON 104 GS(3) (Sem: 1-6)

CHEM 111 GN(1) and PHYS 214(2); or CHEM 112 GN(3), or BIOL 141 GN(3) (Sem: 3-4)

SUPPORTING COURSES AND RELATED AREAS (13 credits)

Select 13 credits of program elective courses[1] from school-approved list. (These credits must be selected to fulfill the thematic requirements of the major.) (Sem: 7-8)

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2011

Blue Sheet Item #: 39-04-098

Review Date: 01/11/2011

UCA Revision #1: 8/9/06

UCA Revision #2: 7/30/07

BD

Mechanical Engineering Technology

Penn State Erie, The Behrend College (METBD)

This major may be taken either as a four-year baccalaureate program or in a "2+2" degree format. The latter allows graduates of associate degree programs in mechanical engineering technology or related areas to gain greater breadth and depth of knowledge in mechanical engineering technology. The baccalaureate program emphasizes applied design and analysis, complementing a hands-on manufacturing and materials focus. The graduate gains valuable knowledge of total manufacturing processes ranging from applied design to manufacture.

This major includes instruction in materials engineering, thermodynamics, heat transfer, hydraulics, finite-element analysis, and use of parametric solids modeling design packages, as well as supporting course work in mathematics and science. Oral and written communications are stressed, as is the ability to work within a team-oriented environment. The major culminates with a capstone design project involving an actual design or manufacturing problem sponsored by regional industry. This program is accredited by the Engineering Technology Accreditation Commission of ABET, www.abet.org.

Graduates have qualified for careers in a wide variety of industries that manufacture or use mechanical systems. Careers include positions in applied product design, manufacturing process development, field service support, supervision of manufacturing

facilities, tool and die design, quality control, plant supervision and management, and technical sales.

Entrance to Major Requirements:

To be eligible for entrance to the Mechanical Engineering Technology major, a student must have: 1) attained at least a 2.00 cumulative grade-point average; 2) completed MATH 81 or MATH 26, and MATH 82 or MATH 22, and MATH 83 or MATH 140, and PHYS 250, and earned a grade of C or better in each of these courses.

For the B.S. degree in Mechanical Engineering Technology, a minimum of 131 credits is required. A student enrolled in this major must earn at least a grade of C in each 300- and 400-level course.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

GENERAL EDUCATION: 45 credits

(18 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)
(See description of General Education in this bulletin.)

FIRST-YEAR SEMINAR:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in GENERAL EDUCATION course selection)

WRITING ACROSS THE CURRICULUM:

(Included in GENERAL EDUCATION course selection)

ELECTIVES: 0-1 credit

REQUIREMENTS FOR THE MAJOR: 103-106 credits

(This includes 18 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GWS courses.)

PRESCRIBED COURSES (73 credits)

ENGL 202C GWS(3), MCHT 111(3)[1], MET 107(3), PHYS 250 GN(4)[1], PHYS 251 GN(4)
(Sem: 1-4)

MCHT 213(3)[1], MCHT 214(1), IET 215(2), IET 216(2), MET 206(3)[1], MATH 210
GQ(3)[1], MET 210(3)[1](Sem: 3-4)

CHEM 110 GN(3), CHEM 111 GN(1), MATH 211 GQ(3), MET 306(3)[1], MET 320(3)[1], MET
330(3)[1], MET 331(4)[1], MET 341(3)[1], MET 415(3)[1] (Sem: 5-6)

MET 425(3)[1], MET 432(3)[1], MET 470(3)[1], MET 480(1)[1], MET 485(3)[1] (Sem: 7-8)

ADDITIONAL COURSES (22-24 credits)

EET 100(3); or EET 101(3); or EET 105(3) and EET 109(1); IET 101(3)[1] or MET 105(3)[1]
(Sem: 1-4)

MATH 26 GQ(3)[1] or MATH 81 GQ(3)[1], MATH 22 GQ(3)[1] or MATH 82 GQ(3)[1], MATH
83 GQ(4)[1] or MATH 140 GQ(4)[1] (Sem: 1-4)

EGT 120(3) and EGT 121(3); or EGT 101(1), EGT 102(1), EGT 114(2), EGT 201(2), and EGT
205(1) (Sem: 1-5)

SUPPORTING COURSES AND RELATED AREAS (8-9 credits)

Select 6 credits of technical electives from school-approved list (Sem: 7-8)

Select 2-3 credits of business electives from school-approved list (Sem: 6-8)

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2010

Blue Sheet Item #: 39-03-028

Review Date: 11/9/2010

UCA Revision #1: 8/18/06

BD

Nursing

Altoona College

Penn State Abington

Penn State Erie, The Behrend College

Penn State Harrisburg

University College: Penn State Fayette, Penn State Mont Alto, Penn State New Kensington,

Penn State Schuylkill, Penn State Shenango, Penn State Worthington Scranton

University Park, School of Nursing (NURN)

World Campus

PROFESSOR PAULA MILONE-NUZZO, *Dean, College of Nursing*

This major prepares registered nurse students as professional practitioners in areas of health promotion and maintenance, illness care, and rehabilitation. The major in Nursing is accredited by the Commission on Collegiate Nursing Education (CCNE), One DuPont Circle, NW Suite 530, Washington, DC 20036 (202-463-6930). Part-time or full-time study is available at any of the campus sites. The University Park site is a blended program, which includes resident instruction and online nursing courses. The World Campus site is completely online.

Senate legislation 42-97 *Credit by Portfolio Assessment* enables students to receive credit for certain prescribed nursing courses based on their RN licensure.

Students must meet all requirements of the clinical institutions that provide preceptors and clinical experiences. These requirements may include CPR certification, professional liability insurance, health examination, drug testing, criminal background check (State and Federal) and child abuse history clearances. Students also are responsible for their own transportation to and from clinical settings and may need the use of a car.

Graduates of this major may qualify for admission to a graduate nursing program.

For the B.S.N. degree in Nursing, a minimum of 120 credits is required.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

GENERAL EDUCATION: 45 credits

(21 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in this bulletin.)

UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

ELECTIVES: 3-5 credits

REQUIREMENTS FOR THE MAJOR: 91-93 credits^[1]

(This includes 21 credits of General Education courses: 3 credits of GHA courses; 9 credits of GN courses; 3 credits of GQ courses; 6 credits of GS courses.)

PRESCRIBED COURSES (76 credits)

BIOL 129 GN(4), BIOL 141 GN(3), BIOL 142(1), HDFS 129 GS(3), MICRB 106 GN(3), MICRB 107 GN(1), NUTR 251 GHA(3), PSYCH 100 GS(3) (Sem: 1-4)

NURS 200W(3)[38], NURS 357(3)[38], NURS 390 US(3)[38] (Sem: 3-4)

NURS 225(3)[37], NURS 230(4)[37], NURS 250 US(2)[37], NURS 301(4)[37], NURS 305(3)[37], NURS 306(3)[37],

NURS 310(3)[37], NURS 320(3)[37], NURS 405B(4)[37], NURS 420(4)[37], (Sem: 5-6)

NURS 417 US;IL(4)[38], NURS 465(3)[38], NURS 475(3)[38] (Sem: 7-8)

ADDITIONAL COURSES (9-11 credits)

Select 3-4 credits from: CHEM 101 GN(3); or CHEM 110 GN(3) and CHEM 111 GN(1) (Sem: 1-4)

Select 3 credits from: SOC 1 GS(3) or SOC 5 GS(3) (Sem: 1-4)

Select 3-4 credits from: STAT 200 GQ(4) or STAT 250 GQ(3) (Sem: 1-4)

Select 3 credits from: NURS 251(3)[38] or NURS 352(3)[38] (Sem: 3-4)

SUPPORTING COURSES AND RELATED AREAS (6 credits)

Select 6 credits from courses on school-approved list in consultation with adviser (3 credits of which must be at the 400 level)

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

[37] Credit by Portfolio Assessment

[38] Due to restricted enrollment, the School of Nursing assigns the semester in which students enroll in these courses and all course prerequisites must be successfully completed.

Last Revised by the Department: Fall Semester 2017

Blue Sheet Item #: 46-02-078

Review Date: 10/3/2017

UCA Revision #1: 8/9/06

HH

Updated contact info for ACEN accrediting agency: 7/31/13

Nursing

Penn State Altoona (General Nursing and Second Degree)

Penn State Erie, Behrend Campus (General Nursing)

Penn State Harrisburg (Second Degree)

University Park (General Nursing)

University College: Penn State Fayette, Penn State Mont Alto, Penn State Worthington Scranton (General Nursing)

PROFESSOR JANICE PENROD, *Interim Dean, College of Nursing*

The Bachelor of Science Degree in Nursing prepares students to become professional practitioners in areas of health promotion and maintenance, illness care, and rehabilitation. After earning this degree in Nursing, students are qualified to take the registered nurse examination for licensure by the State Board of Nursing. The Nursing

major is accredited by the Commission on Collegiate Nursing Education (CCNE), One DuPont Circle, NW Suite 530, Washington, DC 20036 (202-463-6930); and approved by the Pennsylvania State Board of Nursing.

B.S.N. Nursing majors will choose one of the following options:

General Nursing Option (NURS GNURS): This option admits students directly to the major as first year students and at the time of admission only. Nursing students will start and remain at the campus of admission all 4 years. Non-nursing students may not transfer or change major into the 4-year nursing program at University Park, but will be considered through a competitive review process for admission at the 5 other campuses offering the General Nursing program. Clinical experiences occur at clinical facilities within a 50-mile radius of campus; University Park students will spend 1-2 years at Penn State Hershey Medical Center, which requires students to reside at that location.

Second or Additional Degree Option (NURS SCND): This option admits students, who have successfully completed a bachelor's degree in another discipline, to the major through a review process. All students must have met all general education and prerequisite course requirements. This option is available at Penn State Altoona and Penn State Harrisburg. Clinical experiences occur at facilities surrounding Altoona and Harrisburg.

For Both Options: All transportation and expenses related to clinical are the responsibility of the student. All students must carry professional liability insurance; complete an annual health examination, criminal background and child abuse history clearance; drug testing; maintain CPR certification and adhere to any additional requirements of the clinical facilities. A laptop computer is required.

Undergraduate Academic Progression Policy

The Academic Progression policy delineates the academic standards for pre-licensure students (students without an RN license). Failure of two nursing courses results in dismissal from the Nursing major. Details of the academic progression policy are available in the student handbook. (<http://www.nursing.psu.edu/undergrad/handbooks/>).

For the B.S.N. degree in Nursing, a minimum of 120 credits is required. The Second or Additional Degree Option requires the completion of 60 credits of general education and prerequisite courses in the first degree program (prior to admission) and 60 credits of nursing courses completed after admission.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

GENERAL EDUCATION: 45 credits
(21 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)
(See description of General Education in front of *Bulletin*.)

FIRST-YEAR SEMINAR:
(Included in ELECTIVES or GENERAL EDUCATION course selection)

(Second or Additional Degree Option: First-Year Seminar not required since students accepted into this program are required to have earned a bachelor's degree in another discipline)

UNITED STATES CULTURES AND INTERNATIONAL CULTURES:
(Included in REQUIREMENTS FOR THE MAJOR)

WRITING ACROSS THE CURRICULUM:
(Included in REQUIREMENTS FOR THE MAJOR)

ELECTIVES: 4-9 credits

REQUIREMENTS FOR THE MAJOR: 87-92 credits **[1] [2]**

(This includes 21 credits of General Education courses: 3 credits of GHA courses; 9 credits of GN courses; 3 credits of GQ courses; 6 credits of GS courses.)

COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS): 30-32 credits

PRESCRIBED COURSES (21 credits)

BIOL 129 GN(4), BIOL 141 GN(3), BIOL 142(1), HDFS 129 GS(3), MICRB 106 GN(3), MICRB 107 GN(1), NUTR 251 GHA(3), PSYCH 100 GS(3) (Sem: 1-4)

ADDITIONAL COURSES (9-11 credits)

CHEM 101(3); or CHEM 110 GN(3) and CHEM 111 GN(1) (Sem: 1-4)

SOC 1 GS(3) or SOC 5 GS(3) (Sem: 1-4)

STAT 200 GQ(4) or STAT 250 GQ(3) (Sem: 1-4)

REQUIREMENTS FOR THE OPTION: 57-60 credits

GENERAL NURSING OPTION: (57 credits)

PRESCRIBED COURSES (54 credits)

NURS 225(3)**[38]**, NURS 230(4)**[38]**, NURS 250 US(2)**[38]**, NURS 251(3)**[38]** (Sem: 3-4)

NURS 200W(3)**[38]**, NURS 301(4)**[38]**, NURS 305(3)**[38]**, NURS 306(3)**[38]**, NURS

310(3)**[38]**, NURS 320(3)**[38]**, NURS 350(2)**[38]** (Sem: 5-6)

NURS 405A(4)**[38]**, NURS 405B(4)**[38]**, NURS 415 US;IL(4)**[38]**, NURS 420(4)**[38]**, NURS 450A(2)**[38]**, NURS 450B(3)**[38]** (Sem: 7-8)

SUPPORTING COURSES AND RELATED AREAS (3 credits)

Select 3 credits at the 400 level from School-approved list in consultation with adviser (Sem: 7-8)

SECOND OR ADDITIONAL DEGREE OPTION: (60 credits)

PRESCRIBED COURSES (60 credits)

NURS 225(3)**[38]**, NURS 230(4)**[38]**, NURS 250 US(2)**[38]**, NURS 251(3)**[38]** (Sem: 1)

NURS 200W(3)**[38]**, NURS 301(4)**[38]**, NURS 305(3)**[38]**, NURS 310(3)**[38]**, NURS

350(2)**[38]** (Sem: 2)

NURS 306(3)**[38]**, NURS 320(3)**[38]**, NURS 415 US;IL(4)**[38]**, NURS 420(4)**[38]** (Sem: 3)

NURS 405A(4)**[38]**, NURS 405B(4)**[38]**, NURS 450A(2)**[38]**, NURS 450B(3)**[38]**, NURS 495(6)**[38]** (Sem: 4)

[1]A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

[2] Completed prior to admission for students taking the Second or Additional Degree Option.

[38]Due to restricted enrollment, the School of Nursing assigns the semester in which students enroll in these courses and all course prerequisites must be successfully completed.

Last Revised by the Department: Fall Semester 2016

Blue Sheet Item #: 45-03-056

Review Date: 11/15/2016

(R&T 2/28/06)

UCA Revision #1: 8/9/06

Update to accrediting agency contact info: 7/31/13

Comments

HH

Physics

Penn State Erie, The Behrend College (PHYBD)

Not all options are available at every campus. Contact the campus you are interested in attending to determine which options are offered.

The major provides education in the fundamentals of physics and selected advanced topics to prepare graduates for graduate education or for careers in industry. Students have opportunities to participate in research with faculty. In addition to the traditional physics education offered in the General physics option, the option in applied physics, Computational Physics, provides preparation for careers in technological fields.

To be eligible for entrance to the Physics major, a student must have: 1) attained at least a 2.00 cumulative grade-point average; 2) completed CHEM 110 GN(3), MATH 140 GQ(4), MATH 141 GQ(4), PHYS 211 GN(4), and PHYS 212 GN(4), and earned a grade of C or better in each of these courses.

For the B.S. degree in Physics, a minimum of 122 credits is required. Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

GENERAL EDUCATION: 45 credits

(18 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)
(See description of General Education in this bulletin.)

FIRST-YEAR SEMINAR:

(Included in ELECTIVES)

UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in GENERAL EDUCATION course selections)

WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

ELECTIVES: 1 credit

REQUIREMENTS FOR THE MAJOR: 94 credits

(This includes 18 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GWS courses.)

COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS): 66 credits

PRESCRIBED COURSES (66 credits)

CHEM 110 GN(3)[1], CHEM 111 GN(1), CHEM 112 GN(3), CHEM 113 GN(1), MATH 140 GQ(4)[1], MATH 141 GQ(4)[1] (Sem: 1-2)

PHYS 211 GN(4)[1], PHYS 212 GN(4)[1], PHYS 213 GN(2)[1], PHYS 214 GN(2)[1], PHYS 237(3)[1] (Sem: 1-4)

CMPSC 121 GQ(3), ENGL 202C GWS(3) (Sem: 3-4)

MATH 220 GQ(2-3), MATH 230(4), MATH 251(4), PHYS 400(3), PHYS 419(3), PHYS 420(3), PHYS 421(3), PHYS 458(4), PHYS 494(3) (Sem: 5-8)

REQUIREMENTS FOR THE OPTION: 28 credits

COMPUTATIONAL PHYSICS OPTION: (28 credits)

PRESCRIBED COURSES (10 credits)

CMPSC 122(3) (Sem: 1-8)

MATH 455(3), PHYS 402(4) (Sem: 5-8)

ADDITIONAL COURSES (15 credits)

Select 3 credits from CMPSC 459(3), CMPSC 465(3), or CMPSC 474(3) (Sem: 5-8)

Select 12 credits from EE 352(4), EE 450(3), EE 453(3), MATH 456(3), ME 410(3), ME 428(3), PHYS 410(3), PHYS 414(3), PHYS 446(l), PHYS 494(1-3), and/or PHYS 495(1-3) (Sem: 5-8)

SUPPORTING COURSES AND RELATED AREAS (3 credits)

Select 3 credits from a school-approved list (Sem: 1-8)

GENERAL PHYSICS OPTION: (28 credits)

PRESCRIBED COURSES (3 credits)

PHYS 410(3) (Sem: 5-8)

ADDITIONAL COURSES (12 credits)

Select 12 credits from MATH 421(3), MATH 455(3), MATH 456(3), PHYS 402(4), PHYS 414(3), PHYS 446(l), PHYS 494(1-3), and/or PHYS 495(1-3) (Sem: 5-8)

SUPPORTING COURSES AND RELATED AREAS (13 credits)

Select one of the following two sequences:

a. Select 8 credits of a foreign language (Proficiency demo by examination or course work to the level of the second semester in a foreign language is required. If fewer than 8 credits are needed to reach the required proficiency, students choose selections from a school-approved list to make a total of 8 credits.) (Sem: 1-8)

Select 5 credits from a school-approved list (Sem: 1-8)

b. CMPSC 122(3) (Sem: 1-8)

Select 3 credits from CMPSC 459(3), CMPSC 465(3), or CMPSC 474(3) (Sem: 1-8)

Select 7 credits from a school-approved list (Sem: 1-8)

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Summer Session 2010

Blue Sheet Item #: 38-04-003

Review Date: 01/12/2010

UCA Revision #1: 8/9/06

UCA Revision #2: 7/30/07

BD

Plastics Engineering Technology

Penn State Erie, The Behrend College (PLTBD)

This major prepares graduates with the knowledge and skills needed to provide high level engineering technology support to a wide variety of industrial, developmental, commercial, consulting, and sales organizations dealing with the development, manufacture and/or distribution of plastics related products, materials and technologies. The program emphasizes the integration of engineering and scientific principles, practical hands-on experience, application of state-of-the-art computer technologies, and management methods.

Entrance to Major Requirements:

To be eligible for entrance to the Plastics Engineering Technology major, a student must have: 1) attained at least a 2.00 cumulative grade-point average; 2) completed MATH 81 or MATH 26, and MATH 82 or MATH 22, and MATH 83 or MATH 140, and PHYS 250, and earned a grade of C or better in each of these courses.

Graduates are qualified for positions in product development, part design, tooling design, R&D, processing, plant engineering, production control, technical sales and marketing in the plastics industry, and are provided a path to a wide variety of graduate degrees in engineering, science or business.

The four-year baccalaureate program is accredited by the Engineering Technology Accreditation Commission of ABET, www.abet.org. Graduates of the Penn State University associate degree program in Mechanical Engineering Technology may complete this degree in five semesters of full-time study.

For the B.S. degree in Plastics Engineering Technology, a minimum of 134 credits is required. Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

GENERAL EDUCATION: 45 credits

(18 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)
(See description of General Education in this bulletin.)

FIRST-YEAR SEMINAR:

(Included in ELECTIVES)

UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in GENERAL EDUCATION course selection)

WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

ELECTIVES: 1 credit

REQUIREMENTS FOR THE MAJOR: 106 credits

(This includes 18 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GWS courses.)

PRESCRIBED COURSES (82 credits)

CHEM 110 GN(3)[1], CHEM 111 GN(1)[1], EGT 120(3), EGT 121(3), PHYS 250 GN(4)[1], PLET 50(2)[1] (Sem: 1-2)

MCHT 111(3)[1], MCHT 213(3)[1], PLET 205(3)[1], PLET 206(3)[1], PLET 222(4)[1], PLET 227(4)[1], PLET 232(3)[1], PLET 235(2)[1] (Sem: 3-4)

ENGL 202C GWS(3)[1], MATH 211 GQ(3), MET 418(3)[1], MGMT 409(3)[1], PLET 304(3)[1], PLET 323(3)[1], PLET 330(4)[1], PLET 345(2)[1], PLET 350(4)[1], PLET 366(3)[1], PLET 494A(3)[1] (Sem: 5-6)

PLET 425(2)[1], PLET 477(2)[1], PLET 481(3)[1] (Sem: 7-8)

ADDITIONAL COURSES (15 credits)

MATH 26 GQ(3)[1] or MATH 81 GQ(3)[1], MATH 22 GQ(3)[1] or MATH 82 GQ(3)[1], MATH 83 GQ(4)[1] or MATH 140 GQ(4)[1], MATH 210 GQ(3)[1] and two credits of GN electives; or MATH 140 GQ(4)[1], MATH 141 GQ(4)[1], 2 credits of GN electives, and 5 credits of general electives (Sem: 1-4)

SUPPORTING COURSES AND RELATED AREAS (9 credits)

Select a total of 9 credits of technical electives from School-approved list. (Sem: 7-8)

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44

Last Revised by the Department: Fall Semester 2013

Blue Sheet Item #: 42-03-006

Review Date: 11/19/2013

UCA Revision #1: 8/9/06

UCA Revision #2: 7/30/07

BD

Political Science

Penn State Erie, The Behrend College (POLSC)

The discipline of political science consists of different related subfields such as American government, international relations, public policy and administration, the study of how governments accomplish objectives, and comparative politics, the study of foreign government. The major offers students the opportunity to take course work in most subfields as well as seek practical experience through an internship. All students are encouraged to develop research and writing and statistical skills. Many students have continued their education in law or graduate school.

For the B.A. degree in Political Science, a minimum of 120 credits is required. Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

GENERAL EDUCATION: 45 credits

(See description of General Education in this bulletin.)

FIRST-YEAR SEMINAR:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

ELECTIVES: 15 credits

BACHELOR OF ARTS DEGREE REQUIREMENTS: 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL

EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)

(See description of Bachelor of Arts Degree Requirements in this bulletin.)

REQUIREMENTS FOR THE MAJOR: 36 credits

PRESCRIBED COURSES (9 credits)

PLSC 1 GS(3), PLSC 3 GS;IL(3), PLSC 14 GS;IL(3) (Sem: 1-4)

ADDITIONAL COURSES (3 credits)

PLSC 7 GS(3); PLSC 17 GS(3) or PLSC 17W GS(3) (Sem: 1-4)

SUPPORTING COURSES AND RELATED AREAS (24 credits)

(In meeting this requirement, select at least one course beyond the prescribed and additional courses listed above from each of the four fields offered in the program: American Government, Comparative Politics, International Politics, and Government in Theory and Practice.)

Select 12 credits at any level from a program-approved list (Sem: 1-8)

Select 12 credits at the 400 level from a program-approved list (Sem: 3-8)

Last Revised by the Department: Fall Semester 2016

Blue Sheet Item #: 45-01-033

Review Date: 8/23/16

BD

Project and Supply Chain Management

Penn State Erie, The Behrend College (PSCM)

Penn State Harrisburg, Capital College (PSMCA)

University College: Penn State Beaver, Penn State Fayette, Penn State Greater Allegheny, Penn State Lehigh Valley, Penn State New Kensington, and Penn State Shenango

The Project and Supply Chain Management major concentrates on developing knowledge, skills, and abilities in both project and supply chain management, dynamic and important disciplines in modern corporations. Project management skills include the development of new projects, and coordinating procurement and project delivery systems. Supply chain management emphasizes the integration of manufacturing and service operations, logistics, purchasing, and distribution that enable organizations to develop value-creating supply chain networks. The major provides students with an opportunity to develop the quantitative and people skills necessary to design and operate today's complex management systems. Students learn how to manage critical components in organizational supply chains, and apply business analytic methods for organizing and fully integrating supply chain practices throughout the organization.

Graduates are uniquely well-prepared for careers in some of the highest in-demand professions in the modern business and government environments, managing the supply chain and project initiatives in world-class business firms, public sector organizations, construction, IT organizations, third-party logistics providers, and goods and services distribution operations.

Entry to Major Requirements:

Entry to the Management major requires the completion of 5 entry-to-major courses: ACCTG 211(4); ECON 102 GS(3); ENGL 15 GWS(3) or ENGL 30 GWS(3); MATH 110 GQ(4) or MATH 140 GQ(4); STAT 200 GQ(4) or SCM 200(4), and a 2.00 or higher cumulative

grade-point average.

For the B.S. degree in Project and Supply Chain Management, a minimum of 120 credits is required. Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

GENERAL EDUCATION: 45 credits

(15 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)
(See description of General Education in this bulletin.)

FIRST-YEAR SEMINAR:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in REQUIREMENTS FOR THE MAJOR)

WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

ELECTIVES: 2 credits

REQUIREMENTS FOR THE MAJOR: 88 credits

(This includes 15 credits of General Education courses: 6 credits of GQ courses; 6 credits of GS courses; 3 credits of GWS courses.)

PRESCRIBED COURSES (43 credits)

ACCTG 211(4), ECON 102 GS(3), ECON 104 GS(3), ENGL 202D GWS(3) (Sem: 3-4)
FIN 301(3)[1], MGMT 301(3)[1], MIS 204(3), MKTG 301(3)[1], SCM 301(3)[1] (Sem: 3-6)
MGMT 341(3)[1], MGMT 410(3)[1] (Sem: 5-6)
MGMT 418(3)[1], SCM 445(3)[1], SCM 460(3)[1] (Sem: 6-8)

ADDITIONAL COURSES (33 credits)

MATH 110 GQ(4) or MATH 140 GQ(4) (Sem: 1-2)
SCM 200 GQ(4) or STAT 200 GQ(4) (Sem: 3-4)
BA 241(2) and BA 242(2); or BA 243(4) (Sem: 3-6)
Select 3 credits from BA 364(3)[1], ECON 470(3)[1], FIN 471(3)[1], MGMT 461 IL(3)[1],
MKTG 445 IL(3)[1], or other 400-level international business courses[1] (Sem: 5-8)
Select 6 credits of 300- or 400-level courses in one business supporting area or PSCM
electives from MGMT 420(3)[1], MGMT 431(3)[1], MGMT 432(3)[1], MGMT 433(3)[1],
MGMT 440(3)[1], MGMT 453(3)[1], MGMT 466(3)[1], or MGMT 483(3)[1] (Sem: 5-8)
Select 3 credits from ECON 481(3)[1] or MIS 336(3)[1] or MIS 390(3)[1] (Sem: 6-8)
MGMT 415(3)[1] or SCM 416(3)[1] (Sem: 6-8)
SCM 320(3)[1] or SCM 455(3)[1] (Sem: 6-8)
BA 462(3)[1] or MGMT 471W(3)[1] (Sem: 7-8)

SUPPORTING COURSES AND RELATED AREAS (12 credits)

Select 12 credits of approved electives courses from any area (see school list of suggested courses) (See the admission section in the general information section in this bulletin for the placement policy for Penn State foreign language courses.) (Sem: 1-8)

Integrated B.S. in Project and Supply Chain Management and M.B.A. in Business Administration, Penn State Harrisburg

The School of Business Administration offers a limited number of academically superior Bachelor of Science in Project and Supply Chain Management candidates the opportunity to enroll in an integrated, continuous program of study leading to both the Bachelor of

Science in Project and Supply Chain Management and the Master of Business Administration. The ability to coordinate as well as concurrently pursue the two degree programs enables the students to earn both degrees in five years. Specifically, as many as twelve of the credits required for the master's degree may be applied to both undergraduate and graduate degree programs. The Integrated Undergraduate-Graduate Program reduces the total number of credits needed to earn both degrees from 150 to 138.

Students in the IUG program must satisfy the requirements for both the Bachelor of Science in Project and Supply Chain Management and Master of Business Administration degrees. The total course load is reduced due to courses that can count towards both degrees. The first two years of the IUG program are identical to the first two years of the Bachelor of Science program. Students in the IUG program take three additional credits in their third year, and three fewer credits in their fourth year. The courses that count toward the Master of Business Administration degree requirements are included in the fourth year.

Student performance will be monitored on an on-going basis. In addition, a formal evaluation of student academic performance will be performed when the students have completed 100 to 105 credits, which is at the end of the first semester of the senior year for typical students in the program. Students who have not maintained a 3.0 GPA in their graduate courses will be put on probationary status with respect to the IUG program. They will receive a warning letter regarding probationary status. Their ability to continue in the IUG program will be based on their academic performance in the last semester of their senior year.

Students have the choice of receiving the B.S. in Project and Supply Chain Management degree at the end of the fourth year or waiting until the end of the fifth year to receive both degrees. Students who elect to receive the B.S. degree at the end of the fourth year will pay graduate tuition for courses taken in the fifth year; students opting to receive both degrees at the end of the fifth year will pay undergraduate tuition for all five years.

If for any reason students admitted to the IUG program are unable to complete the requirements for the Master of Business Administration degree, the students will be permitted to receive the Bachelor of Science in Project and Supply Chain Management degree assuming all the undergraduate degree requirements have been satisfactorily completed. If the students successfully complete courses listed in the recommended schedule, they will satisfy the requirements for the Bachelor of Science degree by the end of their fourth year.

ADMISSION REQUIREMENTS

To initiate the application process, students must submit a resume, a personal statement including career goals and how MBA will enhance their career goals, transcripts of courses taken outside Penn State, two letters of recommendation, with at least one from the School of Business Administration faculty, and a plan of study that integrates both undergraduate and graduate requirements. A graduate faculty adviser in collaboration with the Director of MBA Program will help undergraduate candidates determine a sequence of courses that will prepare them for acceptance into the Integrated Undergraduate-Graduate (IUG) degree program.

The number of openings in the IUG program is limited. Applicants to the IUG program must have completed a minimum of 60 credits. Typical students would apply after completing between 60 and 90 credits, that is, after the fifth semester and before the end of the seventh semester. In addition, the applicants must earn a minimum of cumulative grade point average of 3.5 and complete the following Entry to Major courses or equivalent: ACCTG 211(4), ECON 102(3), ENGL 15 or 30(3), FIN 301(3), MATH 110 or

140(4), MGMT 301(3), MKTG 301(3) and STAT 200(4) or SCM 200(4).

To formally apply, students must submit a completed graduate school application. The students should mention in the notes section that the application is for the IUG program in Business Administration. The Graduate Management Admission Test (GMAT) or Graduate Record Examination (GRE) is not required for admission into the program; however, if students are interested in applying for a graduate assistantship, GMAT or GRE scores must be submitted by the end of the eighth semester.

Student applications will be evaluated based on their overall portfolio, in addition to the above requirements. In all cases, admission to the program will be at the discretion of the Graduate Admissions Committee in Business Administration.

DEGREE REQUIREMENTS

Students in the IUG program must satisfy the degree requirements for both Bachelor of Science in Project and Supply Chain Management and Master of Business Administration degrees. The total course load is reduced due to the maximum of 12 credits that can count towards both degrees. All courses counted for both degrees must be at the 500- or 800-level.

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2017

Blue Sheet Item #: 46-01-072

Review Date: 8/22/2017

UCA Revision #1: 8/8/06

UCA Revision #2: 7/27/07

BD

Psychology

Penn State Erie, The Behrend College (PSHBA)

The Psychology program at Penn State Behrend provides students a strong foundation in the application of psychological knowledge, skills and techniques for the solution and prevention of individual and social problems. A spectrum of courses (bio-behavioral, clinical, cognitive-experimental, developmental, educational, human factors, industrial/organizational, personality, and social) is united by a strong focus on the scientific method. All students are afforded the opportunity to participate in internships and research assistantships throughout their training. Bachelor-level graduates in psychology are equipped for various positions in human service agencies, businesses, industries, and laboratories. Those not joining the workforce following graduation most often continue their training, working towards a master's or doctoral degree in psychology; others go on to other disciplines, e.g., medical or law school. Courses within this degree can also be used to develop a specialty areas such as criminal justice, sociology or international studies.

The Bachelor of Arts degree requires nine additional credits and proficiency in a second language. The Bachelor of Arts degree helps to prepare students for careers in

education-related settings, human services, clinical settings, and other related fields.

For the B.A. degree in Psychology, a minimum of 120 credits is required. Each student must earn a grade of C or better for prescribed and additional courses in the major and for each 300- and 400-level course in the major field.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

GENERAL EDUCATION: 45 credits

(0-4 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in this bulletin.)

FIRST-YEAR SEMINAR:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

ELECTIVES: 8-27 credits

BACHELOR OF ARTS DEGREE REQUIREMENTS: 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if foreign language proficiency is demonstrated by examination.)

(See description of Bachelor of Arts Degree Requirements in this bulletin.)

REQUIREMENTS FOR THE MAJOR: 43 credits

(This includes 0-4 credits of General Education GQ courses.)

PRESCRIBED COURSES (12 credits)**[1]**

PSYCH 100 GS(3) (Sem: 1-4)

PSYCH 301(4)(Sem: 1-4)

PSYCH 406(4) (Sem: 5-8)

PSYCH 489(1) (Sem: 7-8)

ADDITIONAL COURSES (19 credits)**[1]**

PSYCH 200 GQ(4) or STAT 200 GQ(4) (Sem: 1-4)

Select 3 credits in each of the five content categories below:

1. Biological Bases of Behavior - PSYCH 253 GS(3), PSYCH 260(3), PSYCH 261 GS(3), PSYCH 269(3), PSYCH 425(3), PSYCH 439(3), PSYCH 441(3), PSYCH 450(3), PSYCH 460(3), PSYCH 461(3), PSYCH 462 (3), PSYCH 464(3), PSYCH 475(3), PSYCH 478(3) (Sem: 1-8)
2. Social/Developmental - PSYCH 212 GS(3), PSYCH 221 GS(3), PSYCH 412(3), PSYCH 413(3), PSYCH 414(3), PSYCH 415(3), PSYCH 416(3), PSYCH 420(3), PSYCH 421(3), PSYCH 423(3), PSYCH 424(3) (Sem: 1-8)
3. Cognitive/Learning - PSYCH 253 GS(3), PSYCH 256 GS(3), PSYCH 261 GS(3), PSYCH 268(3), PSYCH 413(3), PSYCH 426(3), PSYCH 427(3), PSYCH 439(3), PSYCH 452(3), PSYCH 456(3), PSYCH 461(3) (Sem: 1-8)
4. Clinical/Applied - EDPSY 14(3), HDFS 311(3), HDFS 315(3), PSYCH 238 GS(3), PSYCH 243 GS(3), PSYCH 244 GS(3), PSYCH 270(3), PSYCH 281 GS(3), PSYCH 370(3), PSYCH 404(3), PSYCH 405(3), PSYCH 408(3), PSYCH 414(3), PSYCH 419(3), PSYCH 438(3), PSYCH 443(3), PSYCH 444(3), PSYCH 445(3), PSYCH 452, PSYCH 456(3), PSYCH 459(3), PSYCH 470(3), PSYCH 471(3), PSYCH 473(3), PSYCH 474(3), PSYCH 476(3), PSYCH 477(3), PSYCH 481(3), PSYCH 482(3), PSYCH 484(3), PSYCH 485(3) (Sem: 1-8)
5. Diversity - PSYCH 230 GS(3), PSYCH 231 GS;US;IL(3), PSYCH 232 GS;US;IL(3), PSYCH

422(3), PSYCH 432(3), PSYCH 479/WMNST 471(3) (Sem: 1-8)

Note: PSYCH 414 may be counted in either Social/Developmental or Clinical/Personality, but not both.

SUPPORTING COURSES AND RELATED AREAS (12 credits)

Select 3 credits of a structured practicum, internship or an approved research experience (PSYCH 294, PSYCH 296, PSYCH 494, PSYCH 495 or PSYCH 496 may be applied to this requirement) (Sem: 3-8)

Select 9 credits of 400-level psychology courses from any combination of categories in consultation with adviser (except 494, 495, 496) (Sem: 5-8)

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2014

Blue Sheet Item #: 43-02-016

Review Date: 10/7/2014

UCA Revision #1: 9/1/06

UCA Revision #2: 7/30/07

BD

Psychology

Penn State Erie, The Behrend College (PSHBS)

Not all options are available at every campus. Contact the campus you are interested in attending to determine which options are offered.

The Psychology program at Penn State Behrend provides students a strong foundation in the application of psychological knowledge, skills and techniques for the solution and prevention of individual and social problems. A spectrum of courses (bio-behavioral, clinical, cognitive-experimental, developmental, educational, human factors, industrial/organizational, personality, and social) is united by a strong focus on the scientific method. All students are afforded the opportunity to participate in internships and research assistantships throughout their training. Bachelor-level graduates in psychology are equipped for various positions in human service agencies, businesses, industries, and laboratories. Those not joining the workforce following graduation most often continue their training, working towards a master's or doctoral degree in psychology; others go on to other disciplines, e.g., medical or law school. Courses within this degree can also be used to develop a specialty in areas such as criminal justice, sociology or international studies.

The Bachelor of Science degree offers three multidisciplinary options. The Science option is intended for students with a strong interest in science and requires more course work in the biological, physical, social, and mathematical sciences than does the Bachelor of Arts program. The Psychology in the Workplace option is designed for students who wish to combine their interests in business and psychology. The Human Factors and Design option combines perspectives within the fields of psychology and engineering in order to design products that maximize human functioning.

The Bachelor of Science degree helps to prepare students for future careers in clinical developmental, educational, human factors, industrial organization, and other related health fields.

For the B.S. degree in Psychology, a minimum of 120 credits is required. Each student must earn a grade of C or better for prescribed and additional courses in the major and for each 300- and 400-level course in the major field.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

GENERAL EDUCATION: 45 credits

(4-8 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in this bulletin.)

FIRST-YEAR SEMINAR:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

ELECTIVES: 14-15 credits

REQUIREMENTS FOR THE MAJOR: 64 credits

(This includes 3-4 credits of General Education GQ courses.)

COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS): 46 credits

PRESCRIBED COURSES (12 credits) **[1]**

PSYCH 100 GS(3) (Sem: 1-4)

PSYCH 301(4) (Sem: 3-6)

PSYCH 406(4) (Sem: 5-8)

PSYCH 489(1) (Sem: 7-8)

ADDITIONAL COURSES (19 credits) **[1]**

PSYCH 200(4) or STAT 200 GQ(4) (Sem: 1-4)

Select 3 credits in each of the following five content categories below:

1. Biological Bases of Behavior - PSYCH 253 GS(3), PSYCH 260(3), PSYCH 261 GS(3), PSYCH 269(3), PSYCH 425(3), PSYCH 439(3), PSYCH 441(3), PSYCH 450(3), PSYCH 460(3), PSYCH 461(3), PSYCH 462 (3), PSYCH 464(3), PSYCH 475(3), PSYCH 478(3) (Sem: 1-8)

2. Social/Developmental - PSYCH 212 GS(3), PSYCH 221 GS(3), PSYCH 412(3), PSYCH 413(3), PSYCH 414(3), PSYCH 415(3), PSYCH 416(3), PSYCH 420(3), PSYCH 421(3), PSYCH 423(3), PSYCH 424(3) (Sem: 1-8)

3. Cognitive/Learning - PSYCH 253 GS(3), PSYCH 256 GS(3), PSYCH 261 GS(3), PSYCH 268(3), PSYCH 413(3), PSYCH 426(3), PSYCH 427(3), PSYCH 439(3), PSYCH 452(3), PSYCH 456(3), PSYCH 461(3) (Sem: 1-8)

4. Clinical/Applied - EDPSY 14(3), HDFS 311(3), HDFS 315(3), PSYCH 238 GS(3), PSYCH 243 GS(3), PSYCH 244 GS(3), PSYCH 270(3), PSYCH 281 GS(3), PSYCH 370(3), PSYCH 404(3), PSYCH 405(3), PSYCH 408(3), PSYCH 414(3), PSYCH 419(3), PSYCH 438(3), PSYCH 443(3), PSYCH 444(3), PSYCH 445(3), PSYCH 452, PSYCH 456(3), PSYCH 459(3), PSYCH 470(3), PSYCH 471(3), PSYCH 473(3), PSYCH 474(3), PSYCH 476(3), PSYCH 477(3), PSYCH 481(3), PSYCH 482(3), PSYCH 484(3), PSYCH 485(3) (Sem: 1-8)

5. Diversity - PSYCH 230 GS(3), PSYCH 231 GS;US;IL(3), PSYCH 232 GS;US;IL(3), PSYCH 422(3), PSYCH 432(3), PSYCH 479/WMNST 471(3) (Sem: 1-8)

Note: PSYCH 414 may be counted in either Social/Developmental or Clinical/Personality, but not both.

SUPPORTING COURSES AND RELATED AREAS (15 credits)

Select 3 credits of a structured practicum, internship or an approved research experience

(PSYCH 294, PSYCH 296, PSYCH 494, PSYCH 495 or PSYCH 496 may be applied to this requirement) (Sem: 3-8)

Select 3 credits of quantification courses from the departmental list - Quantification (Sem: 3-8)

Select 9 credits of 400-level psychology courses from any combination of categories in consultation with adviser (except 494, 495, 496) (Sem: 5-8)

REQUIREMENTS FOR THE OPTION: 18 credits
(Option courses may not double count with major requirements)

HUMAN FACTORS AND DESIGN OPTION: (18 credits)

PRESCRIBED COURSES (6 credits)[1]

PSYCH 244 GS(3) (Sem: 3-8)

PSYCH 444(3) (Sem: 5-8)

ADDITIONAL COURSES (3 credits)[1]

PSYCH 253 GS(3) or PSYCH 256 GS(3) (Sem: 2-6)

SUPPORTING COURSES AND RELATED AREAS (9 credits)

Select 9 credits in psychology, engineering and business-related courses from the departmental list - Human Factors and Design Option and in consultation with adviser (Sem: 3-8)

PSYCHOLOGY IN THE WORKPLACE OPTION: (18 credits)

PRESCRIBED COURSES (3 credits)[1]

PSYCH 281 GS(3) (Sem: 3-8)

SUPPORTING COURSES AND RELATED AREAS: 15 credits

Select 15 credits in business-related courses from the departmental list - Psychology in the Workplace Option and in consultation with adviser (6 credits may be selected from PSYCH 282, PSYCH 484, or PSYCH 485) (Sem: 3-8)

SCIENCE OPTION: (18 credits)

ADDITIONAL COURSES (3 credits)[1]

PSYCH 253(3) or PSYCH 260A(3) or PSYCH 261(3) (Sem: 3-8)*

SUPPORTING COURSES AND RELATED AREAS (15 credits)

Select 15 credits in science-related courses from the departmental list - Science Option and in consultation with adviser (Sem: 3-8) *

* Six credits of PSYCH courses listed in the Additional Courses category for the Science Option that the student does not apply under Additional Courses for the Science Option may be taken as Supporting Courses counting toward the Science Option. However, these credits may *not* count in both the Science Option *and* towards the Additional Courses or Supporting Courses and Related Areas Common Requirements for the Major.

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2014

Blue Sheet Item #: 43-02-017

Review Date: 10/7/2014

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UCA Revision #2: 7/30/07

Science

Penn State Erie, The Behrend College (SCNBD)

Not all options are available at every campus. Contact the campus you are interested in attending to determine which options are offered.

This interdisciplinary major provides a broad, general education in science. The B.S. degree major includes options in General Science and Environmental Studies, and in Earth and Space Science Pre-certification and General Science Pre-certification for teaching. The curriculum is designed for students who have educational goals not readily met by one of the science majors or for those who require a high degree of flexibility to attain their educational objectives. After completing foundation courses in calculus, chemistry, computer science, the life sciences, and physics, students select additional science courses from designated areas. A large number of supporting credits will permit students to include a minor or course sequences in business, education, technical writing, or other fields.

For the B.S. degree in Science, a minimum of 120 credits is required, with at least 15 credits at the 400 level. Each student must earn at least a grade of C in each 300- and 400-level prescribed, additional, and supporting course.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

GENERAL EDUCATION: 45 credits
(15 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)
(See description of General Education in this bulletin.)

FIRST YEAR SEMINAR:
(Included in ELECTIVES or GENERAL EDUCATION course selection)

UNITED STATES CULTURES AND INTERNATIONAL CULTURES:
(Included in GENERAL EDUCATION course selection)

WRITING ACROSS THE CURRICULUM:
(Included in REQUIREMENTS FOR THE MAJOR)

ELECTIVES (0-1 credit)

REQUIREMENTS FOR THE MAJOR: 89-90 credits **[80]**
(This includes 15 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses.)

COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS): 44-46 credits

PRESCRIBED COURSES (24 credits)

BIOL 110 GN(4) **[11]** (Sem. 1-4)

CHEM 110 GN(3) **[11]**, CHEM 111 GN(1), CHEM 112 GN(3), CHEM 113 GN(1), MATH 140

GQ(4) **[11]**, MATH 141 GQ(4) (Sem: 1-2)

CMPSC 121(3) (Sem: 1-4)

ADDITIONAL COURSES (12-14 credits)

PHYS 211 GN(4) **[11]**, PHYS 212 GN(4), PHYS 213 GN(2) or PHYS 214(2); or PHYS 250 GN(4) **[11]**, PHYS 251 GN(4) (Sem: 3-6)

Select 4 credits from BIOL 220W GN(4), BIOL 230W GN(4), BIOL 240W GN(4) (Sem: 3-6)

SUPPORTING COURSES AND RELATED AREAS (8 credits)

Select 8 credits in a foreign language (proficiency demonstrated by examination or course work to the level of the second semester; if fewer than 8 credits are needed to reach the required proficiency, students choose selections from program list to total 8 credits)
(Sem: 1-8)

REQUIREMENTS FOR THE OPTION: 43-46 credits[\[81\]](#)**GENERAL SCIENCE OPTION: (43-46 credits)****ADDITIONAL COURSES (3-4 credits)**

Select 3-4 credits from CMPSC 122 GQ(3), MATH 230(4), MATH 250(3), or STAT 200 GQ(4) (Sem: 3-6)

SUPPORTING COURSES AND RELATED AREAS (39-43 credits)

Select 3 credits from geosciences[\[79\]](#) (Sem: 1-8)

Select 18 credits, with at least 9 credits at the 400 level, in one of the areas: computer sciences, life sciences, mathematical sciences, or physical sciences[\[79\]](#) (Sem: 3-8)

Select 18-22 credits, with at least 6 credits at the 400 level, from program list (Students may apply 6 credits of basic ROTC.) (Sem: 1-8)

ENVIRONMENTAL STUDIES OPTION: (43-46 credits)**PRESCRIBED COURSES (7 credits)**

BIOL 402(3), GEOG 160 GS(3), GEOG 161(1) (Sem: 3-8)

ADDITIONAL COURSES (9-11 credits)

Select 3-4 credits from BIOL 220W GN(4), BIOL 230W GN(4), BIOL 240W GN(4), or MICRB 201 GN(3) (Sem: 3-6)

CHEM 202(3) or CHEM 221(4) (Sem: 3-6)

STAT 200 GQ(3) or STAT 250 GQ(3) (Sem: 3-8)

SUPPORTING COURSES AND RELATED AREAS (25-30 credits)

Select 6 credits from geosciences[\[79\]](#) [\[82\]](#) (Sem: 3-8)

Select 6 credits of 400-level courses in computer sciences, life sciences, mathematical sciences, or physical sciences[\[79\]](#) (Sem: 5-8)

Select 9-16 credits from Environmental Studies option program list with at least 6 credits with ECON, ECNS, PLSC, or POLSC designations and at least 5-7 credits at the 400 level (Students may apply 6 credits of basic ROTC.) (Sem: 1-8)

Select 2-4 credits of 400-level research, internship, field school, or studies abroad[\[80\]](#) (Sem: 5-8)

EARTH AND SPACE SCIENCE PRE-CERTIFICATION OPTION: (43-46 credits)

(This option is designed to prepare students in pre-certification for teaching earth and space science.)

PRESCRIBED COURSES (15 credits)

ASTRO 10 GN(2), ASTRO 11 GN(1), GEOSC 2 GN(3), GEOSC 20 GN(3), GEOSC 40 GN(3), METEO 3 GN(3) (Sem: 1-4)

ADDITIONAL COURSES (6 credits)

Select 6 credits from ASTRO 291 GN(3), ASTRO 292 GN(3), GEOG 10 GN(3), or GEOSC 10 GN(3) (Sem: 3-8)

SUPPORTING COURSES AND RELATED AREAS (22-25 credits)

Select 6 credits from the geosciences[\[79\]](#)[\[82\]](#) (Sem: 5-8)

Select at least 6 credits at the 400 level in one of the following areas: computer sciences, life sciences, mathematical sciences, or physical sciences[\[79\]](#) (Sem:5-8)

Select 10-13 credits, with at least 6-9 credits at the 400 level, from the program list (Students may apply 6 credits of basic ROTC.) **[80]** (Sem: 1-8)

GENERAL SCIENCE PRE-CERTIFICATION OPTION: (43-46 credits)

(This option is designed to prepare students in pre-certification for teaching general science.)

PRESCRIBED COURSES (19 credits)

ASTRO 10 GN(2), ASTRO 11 GN(1), BIOL 230W GN(4), GEOSC 2 GN(3), GEOSC 20 GN(3), GEOSC 40 GN(3), METEO 3 GN(3) (Sem: 1-4)

ADDITIONAL COURSES (7-8 credits)

Select 3-4 credits from CMPSC 122 GQ(3), MATH 230(4), MATH 250(3), or STAT 200 GQ(4) (Sem: 3-6)

Select 4 credits from BIOL 220W GN(4) or BIOL 240W GN(4) (Sem: 3-6)

SUPPORTING COURSES AND RELATED AREAS (16-20 credits)

Select at least 6 credits at the 400 level in one of the following areas: computer sciences, life sciences, mathematical sciences, or physical sciences **[79]** (Sem: 5-8)

Select 10-14 credits, with 6-9 credits at the 400 level, from the program list (Students may apply 6 credits of basic ROTC.) **[80]** (Sem: 1-8)

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

[79] Computer sciences include CENBD and CMPSC; geosciences include GEOG, GEOSC, MATSC, MATSE; life sciences include BIOL, BMB, MICRB; mathematical sciences include MATH and STAT; physical sciences include ASTRO, CHEM, PHYS.

[80] A student in this major must complete at least 15 credits of 400-level courses and 3 credits of W courses in prescribed, additional, or supporting courses from one of the areas: computer science, life sciences, mathematical sciences, or physical sciences.

[81] A maximum of 8 credits of Research (494), Internship (495), or Independent Study (296, 496) may be applied toward credits for graduation in all options.

[82] In addition to courses used to satisfy the prescribed courses requirement.

Last Revised by the Department: Summer Session 2003

Blue Sheet Item #: 31-04-013

Review Date: 1/14/03

UCA Revision #1: 8/14/06

UCA Revision #2: 7/30/07

BD

Secondary Education

Abington College (SECAB)

Penn State Erie, The Behrend College (SECBC)

University Park, College of Education (SECED)

Not all options are available at every campus. Contact the campus you are interested in attending to determine which options are offered.

PROFESSOR SCOTT METZGER, *Director*

The following teaching options are available for majors in Secondary Education: Biological

Science, Chemistry, Earth and Space Science, English/Communication, Environmental Education, General Science, Mathematics, Physics, and Social Studies/Citizenship Education.

The Secondary Education major helps prepare students for middle school and/or high school teaching positions and for other employment in fields related to their content specialties.

BIOLOGICAL SCIENCE TEACHING OPTION: This option enables the graduate to meet all of the academic requirements for the Instructional I certificate for teaching at the secondary-school level, which is issued by the Pennsylvania Department of Education.

CHEMISTRY TEACHING OPTION: This option enables the graduate to meet all of the academic requirements for the Instructional I certificate for teaching at the secondary-school level, which is issued by the Pennsylvania Department of Education.

EARTH AND SPACE SCIENCE TEACHING OPTION: This option enables the graduate to meet all of the academic requirements for the Instructional I certificate for teaching at the secondary-school level, which is issued by the Pennsylvania Department of Education.

ENGLISH/COMMUNICATION TEACHING OPTION: This option enables the graduate to meet all of the academic requirements for the Instructional I certificate for teaching at the secondary-school level, which is issued by the Pennsylvania Department of Education. This program has a Language and Literature Core and a Media Literacies Core. This program is open to students outside the College of Education who desire certification.

ENVIRONMENTAL EDUCATION TEACHING OPTION: This option enables the graduate to meet all of the academic requirements for a Pennsylvania teacher certification in Environmental Education when completed in conjunction with another secondary education teaching option (i.e., Biological Science Teaching option). The total number of credits required will depend primarily on that other option.

GENERAL SCIENCE TEACHING OPTION: This option enables the graduate to meet all of the academic requirements for the Instructional I certificate for teaching General Science at the secondary-school level, which is issued by the Pennsylvania Department of Education. This option may only be completed in conjunction with another secondary education option (e.g., Biology); the total number of credits required will depend primarily on that other option.

MATHEMATICS TEACHING OPTION: This option enables the graduate to meet all of the academic requirements for the Instructional I certificate for teaching at the secondary-school level, which is issued by the Pennsylvania Department of Education.

PHYSICS TEACHING OPTION: This option enables the graduate to meet all of the academic requirements for the Instructional I certificate for teaching at the secondary-school level, which is issued by the Pennsylvania Department of Education.

SOCIAL STUDIES TEACHING OPTION: This option enables the graduate to meet all of the academic requirements for the Instructional I certificate for teaching social studies courses in the secondary-school level, which is issued by the Pennsylvania Department of Education. This option has a prescribed component required for all candidates as well as a choice of concentrations that focus on a specific area. All graduates who successfully complete this program are highly qualified to teach history in secondary grades (7-12) and are eligible for PA certification in Social Studies (7-12) and /or Citizenship Education (7-12). Candidates who successfully complete the Civics & Government concentration are highly qualified to be teachers of U.S. government and civics (7-12). Candidates who successfully complete the Economics concentration are highly qualified to be teachers of economics and economic issues (7-12). Candidates who successfully complete the

Geography concentration are highly qualified to be teachers of geography and global studies (7-12). Candidates who successfully complete the Social Sciences concentration receive additional content preparation to be highly qualified teachers of anthropology, psychology, or sociology (7-12). Candidates who successfully complete the Citizenship Education concentration receive additional in-depth content preparation in selected social-studies subjects (7-12).

Baccalaureate degree candidates must meet the following requirements 1-3 by the end of their third semester:

1. A minimum cumulative grade point average of 3.00
2. Qualifying scores from the PECT PAPA for Reading, Writing and Mathematics
3. Documentation of at least 40 hours of volunteer or paid education work experience with learners of the age group the candidate plans to teach, with younger learners in the candidate's intended content area, or with adults with special needs. Part of this experience should include working with some learners who come from backgrounds that are different from the candidate's.

Requirements 4-9 must be met by the end of the fourth semester when students typically participate in the Entrance to Major process.

4. A grade of "C" or better in all specified courses.
5. Completion of an early field experience specified by the certification program.
6. Completion of a core of Education courses specified by the certification program.
7. Completion of additional credits as specified by the certification program.
8. Completion of at least 48 semester credit hours, including ENGL 15 GWS(3) or ENGL 30 GWS(3), three credits of literature, and six credits of quantification
9. Approval from the professional education adviser or the head of the pertinent certification program.

For the B.S. degree in Secondary Education with an option in *Biological Science Teaching*, a minimum of 129 credits is required; with an option in *Chemistry Teaching*, a minimum of 126 credits is required; with an option in *Earth and Space Science Teaching*, a minimum of 123 credits is required; with an option in *English/Communication Teaching*, a minimum of 126 credits is required; with an option in *Environmental Education Teaching* and a cohort option, a minimum of 123 credits is required; with an option in *General Science Teaching* and a cohort option, a minimum of 121 credits is required; with an option in *Mathematics Teaching*, a minimum of 132 credits is required; with an option in *Physics Teaching*, a minimum of 121 credits is required; with an option in *Social Studies Teaching*, a minimum of 129 credits is required. (See also [Teacher Education Programs](#).)

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

GENERAL EDUCATION: 45 credits

(12-24 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)
(See description of General Education in this bulletin.)

FIRST-YEAR SEMINAR:

(Included in ELECTIVES or GENERAL EDUCATION course selection)

UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

WRITING ACROSS THE CURRICULUM:

(Included in REQUIREMENTS FOR THE MAJOR)

ELECTIVES: 0-4 credits

REQUIREMENTS FOR THE MAJOR: 83-105 credits

(This includes 12-27 credits of General Education courses: Biological Science Teaching option, Chemistry Teaching option, Earth and Space Science Teaching option, Environmental Education Teaching option, General Science Teaching option, and Physics Teaching option--6 credits of GH courses; 9 credits of GN courses, 3-6 credits of GS courses; 6 credits of GQ courses. English/Communication Teaching option--3-6 credits of GA courses; 6 credits of GH courses; 3-6 credits of GS courses. Mathematics Teaching option--6 credits of GH courses; 3-6 credits of GS courses; 6 credits of GQ courses. Social Studies Teaching option--6 credits of GH courses; 3 credits of GN courses; 6 credits of GS courses.)

COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS): 45 credits **[18]**

PRESCRIBED COURSES (36 credits)

CI 295(2), EDPSY 14(3), PSYCH 100 GS(3) (Sem: 1-2)

CI 280 GH(3) (Sem: 1-6)

CI 495C(3), SPLED 400(4), SPLED 403B(3) (Sem: 5-8)

CI 495E(15) (Sem: 7-8)

ADDITIONAL COURSES (3 credits)

PSYCH 412(3) or HDFS 239 GS(3) (Sem: 4-6)

SUPPORTING COURSES AND RELATED AREAS (6 credits)

Select 3 credits of GH courses from Literature Selection (Sem: 1-4)

Select 3 credits EDTHP 115 US(3) or EDTHP 115A GS;US(3) (Sem: 1-2) or 3 credits at the 400 level of any EDTHP course (Sem: 5-8)

REQUIREMENTS FOR THE OPTION:38-66 credits

BIOLOGICAL SCIENCE TEACHING OPTION (63-66 credits) **[18]**

**OPTION CURRENTLY ON HOLD at Penn State Abington;
NOT ACCEPTING NEW STUDENTS**

Begin Date of Enrollment Hold: May 30, 2012

**The program will continue to be delivered at University Park and
Penn State Erie.**

PRESCRIBED COURSES (30 credits)

CHEM 110 GN(3), CHEM 111 GN(1), CHEM 112 GN(3), CHEM 113 GN(1), MATH 140 GQ(4) (Sem: 1-2)

BIOL 110 GN(4), BIOL 220W GN(4), BIOL 240W GN(4) (Sem: 1-4)

SCIED 411(3), SCIED 412(3) (Sem: 5-7)

ADDITIONAL COURSES (25-28 credits)

MATH 141 GQ(4) or 4 credits of 200-level STAT GQ courses; BIOL 230W GN(4) or BMB 251(3) and BMB 252(3); BIOL 427(3), GEOSC 204(4), GEOSC 424(3), ANTH 21 GN(3) or ANTH 460(3); PHYS 250 GN(4) and PHYS 251 GN(4) or PHYS 211 GN(4) and PHYS 212 GN(4) (Sem: 4-7)

Select 6 credits from BMB 211(3), BMB 212(1), BMB 401(3), BMB 402(3), CHEM 202(3), CHEM 203(3), CHEM 210(3), CHEM 212(3), CHEM 213(2) (Sem: 4-7)

SUPPORTING COURSES AND RELATED AREAS (8 credits)

Select 8 credits of 300-level or 400-level BIOL or biological fields (Sem: 5-7)

Note 1: Students may complete multiple science teaching options concurrently by completing all of each option's requirements. The six science teaching options are: Biology, Chemistry, Earth and Space Science, Environmental Education, General Science, and Physics.

Note 2: Red Cross certification in First Aid and CPR (or their equivalent) must be earned for science certification.

CHEMISTRY TEACHING OPTION: (60-62 credits)[18]

PRESCRIBED COURSES (42 credits)

CHEM 110 GN(3), CHEM 111 GN(1), CHEM 112 GN(3), CHEM 113 GN(1), MATH 140 GQ(4) (Sem: 1-2)

BIOL 110 GN(4), MATH 141 GQ(4), PHYS 211 GN(4), PHYS 212 GN(4) (Sem: 1-4)

CHEM 451(3), CHEM 452(3), CHEM 457(1-2), SCIED 411(3), SCIED 412(3) (Sem: 5-7)

ADDITIONAL COURSES (12-14 credits)

CHEM 202(3) and CHEM 203(3) or CHEM 210(3), CHEM 212(3), and CHEM 213(2) (Sem: 3-4)

Select 6 credits from CHEM 402(3), CHEM 406(3), CHEM 408(3), CHEM 410(3), CHEM 412(3), CHEM 423(4), CHEM 425(4) (Sem: 5-7)

SUPPORTING COURSES AND RELATED AREAS (6 credits)

Select 6 credits in CHEM or chemistry-related fields at the 200 level or higher (e.g., BMB 211 and BMB 212, BMB 251, BMB 252, MICRB 251, FDSC 400, ANSC 301, NUTR 251, CHEM, CHE) (Sem: 5-7)

Note 1: Students may complete multiple science teaching options concurrently by completing all of each option's requirements. The six science teaching options are: Biology, Chemistry, Earth and Space Science, Environmental Education, General Science, and Physics.

Note 2: Red Cross certification in First Aid and CPR (or their equivalent) must be earned for science certification.

EARTH AND SPACE SCIENCE TEACHING OPTION: (57-62 credits)[18]

PRESCRIBED COURSES (22 credits)

MATH 140 GQ(4), BIOL 110 GN(4), CHEM 110 GN(3), CHEM 112 GN(3), CHEM 111 GN(1), CHEM 113 GN(1) (Sem: 1-2)

SCIED 411(3), SCIED 412(3) (Sem: 5-7)

ADDITIONAL COURSES (27-33 credits)

GEO SC 1(3), GEO SC 20 GN(3) or GEO SC 71(3) (Sem: 1-3)

MATH 141 GQ(4) or 4 credits of 200-level STAT GQ courses (Sem: 1-4)

PHYS 250 GN(4) and PHYS 251 GN(4), or PHYS 211 GN(4) and PHYS 212 GN(4), or PHYS 211 GN(4) and PHYS 213 GN(2) (Sem: 1-4)

GEO SC 21 GN(3) or GEO SC 204(4); EARTH 100 GN(3), EARTH 101 GN;US(3), EARTH 103 GN(3) or EARTH 105 GN;IL(3); METEO 3 GN(3), METEO 201(3), or METEO 300(4); ASTRO 10 GN(2) and ASTRO 11 GN(1), or ASTRO 291 GN(3) (Sem: 1-5)

GEO SC 40 GN(3), GEO SC 440(3) or GEO SC 445(4); or METEO 22(2); or BIOL 435(3) or BIOL 482(4) (Sem: 3-6)

SUPPORTING COURSES AND RELATED AREAS (8 credits)

Select 8 credits from EARTH, GEO SC, METEO, ASTRO, other earth science field, or BIOL 427(3) (Sem: 5-7)

Note 1: Students may complete multiple science teaching options concurrently by completing all of each option's requirements. The six science teaching options are: Biology, Chemistry, Earth and Space Science, Environmental Education, General Science, and Physics.

Note 2: Red Cross certification in First Aid and CPR (or their equivalent) must be earned for science certification.

ENGLISH/COMMUNICATION TEACHING OPTION: (54 credits)[18] Note: Must complete at least 3 credits of IL and 3 credits of US Cultures selections.

LANGUAGE AND LITERATURE CORE: (36 credits)

PRESCRIBED COURSES (12 credits)

ENGL 444(3) (Sem: 5-6)

LLED 411(3), LLED 412(3), LLED 420(3) (Sem: 5-8)

ADDITIONAL COURSES (24 credits)

Select 3 credits from each cluster (a-h) below:

(a) 200-level British or U.S. Literature Survey (Sem: 3-6)

ENGL 221 GH(3), ENGL 221W(3), ENGL 222 GH(3), ENGL 222W(3), ENGL 231 GH(3), ENGL 231W, ENGL 232 GH(3), ENGL 232W(3)

(b) Elements of Literature (Sem: 3-6)

ENGL 201(3), ENGL 261(3), ENGL 262 GH(3), ENGL 263 GH(3), ENGL 265 GH(3), ENGL 268 GH(3), ENGL 401(3), ENGL 401W(3), COMM 261(3)

(c) 400-level Comparative Literature/Literature of Diverse Cultures (Sem: 5-8)

AMST 493(3), CMLIT 400 US;IL(3), CMLIT 401 IL(3), CMLIT 402 US;IL(3), CMLIT 403 US(3), CMLIT 404 IL(3), CMLIT 405 US;IL(3), CMLIT 406 IL(3), CMLIT 408 IL(3), CMLIT 422 IL(3), CMLIT 423 IL(3), CMLIT 453 IL(3), CMLIT 470 IL(3), CMLIT 480 IL(3), CMLIT 486 IL(3), CMLIT 487 IL(3), CMLIT 488 IL(3), ENGL 404(3), ENGL 426 US(3), ENGL 431 US(3), ENGL 461 US(3), ENGL 462 US(3), ENGL 463 US(3), ENGL 466 US(3), ENGL 467 US(3), ENGL 468 US(3), ENGL 469 US(3), ENGL 490 US;IL(3); ENGL 401(3), ENGL 402(3), ENGL 404(3) when topic appropriate (with adviser's approval)

(d) 400-level Topics in American Literature (sem: 5-8)

ENGL 430(3), ENGL 432(3), ENGL 433(3), ENGL 434(3), ENGL 435(3), ENGL 436(3), ENGL 437(3), ENGL 438(3), or ENGL 439(3), ENGL 492(3); ENGL 401(3), ENGL 402(3), ENGL 404(3) when topic appropriate (with adviser's approval)

(e) Topics in British Literature (Sem: 5-8)

ENGL 440(3), ENGL 441(3), ENGL 442(3), ENGL 443(3), ENGL 445(3), ENGL 446(3), ENGL 447(3), ENGL 448(3), ENGL 450(3), ENGL 452(3), ENGL 453(3), ENGL 454(3), ENGL 455(3), ENGL 456(3), ENGL 457(3), ENGL 458(3), ENGL 489(3); ENGL 401(3), ENGL 402(3), ENGL 404(3) when topic appropriate (with adviser's approval)

(f) Grammar, Language, and Linguistics (Sem: 5-6)

ENGL 100(3), ENGL 407(3), ENGL 417(3), or LING 100 GS(3)

(g) Creative Writing and/or Advanced Composition (Sem: 5-6)

CAS 214(3), COMM 260W(3), COMM 460(3), COMM 461(3), COMM 462(3), COMM 467(3), ENGL 212(3), ENGL 213(3), ENGL 215(3), ENGL 281(3), ENGL 412(3), ENGL 413(3), ENGL 414(3), ENGL 416(3), ENGL 418(3), ENGL 419(3), ENGL 420(3), ENGL 421(3), THEA 440(3)

(h) Rhetoric (Sem: 7-8)

CAS 215(3), CAS 415(3), CAS 475(3), COMM 467(3), ENGL 409(3), ENGL 411(3), ENGL 470(3), ENGL 471(3), ENGL 472(3), ENGL 473(3), ENGL 474(3), ENGL 487(3)

MEDIA LITERACIES CORE: (18 credits)

PRESCRIBED COURSES (3 credits)

LLED 480(3) (Sem: 5-6)

ADDITIONAL COURSES (15 credits)

(a) Mass Media. Select 3 credits from:

COMM 100 GS(3), COMM 118 GS(3), COMM 150 GA(3), COMM 205 GS;US(3), COMM 411(3), COMM 413W(3) (Sem: 1-4)

(b) Speech and Oral Performance. Select 3 credits from:

CAS 211(3), CAS 213(3), CAS 215(3), CAS 250(3), CAS 271 US;IL(3), CAS 280(3) or CAS 480(3), CAS 375(3), CAS 422 US(3), THEA 102 GA(3) (Sem: 4-8)

(c) Media Literacy. Select 9 credits within one, or across several, of the following media literacy areas:

Multimedia

ART 100 GA(3), ARTH 111 GA;IL(3), ARTH 112 GA;IL(3), ARTH 120 GA;IL(3), ARTH 130 GA;US;IL(3), CAS 175 GH(3), CAS 283(3), CAS 415(3), CAS 483(3), COMM 100 GS(3), COMM 118(3), COMM 120(3), COMM 150 GA(3), COMM 180 GS(3), COMM 205 US(3), COMM 242(3), COMM 250 GA(3), COMM 283(3), COMM 453 IL(3), COMM 454(3), CMLIT 453(3), PHOTO 100 GA(3), WMNST 205 GS;US(3) (Sem: 1-8)

Theatre

THEA 102 GA(3), THEA 103(3), THEA 104(3), THEA 110(3), THEA 112(3), THEA 120(3), THEA 130(3), THEA 131(3), THEA 189(3), THEA 210(3), THEA 428(2) (Sem: 1-8)

Journalism

COMM 260W(3), COMM 261 GH(3), COMM 269(3), COMM 409(3), COMM 460(3), COMM 461(3), COMM 462(3), COMM 467(3), COMM 497 when topic appropriate (with adviser's approval) (Sem: 3-8)

Communication Arts and Sciences

CAS 201 GH(3), CAS 202 GS(3), CAS 203 GS(3), CAS 211(3), CAS 213(3), CAS 215(3), CAS 250(3), CAS 280(3), CAS 311(3), CAS 375(3), CAS 383(3), CAS 411(3), CAS 422 US(3), CAS 455 US(3), CAS 470(3), CAS 471 US;IL(3), CAS 475(3) (Sem: 3-8)

Creative Writing

ENGL 210(3), ENGL 212(3), ENGL 213(3), ENGL 215(3), ENGL 281(3), ENGL 412(3), ENGL 413(3), ENGL 422(3), ENGL 423(3), ENGL 425(3) Sem: (3-8)

Instructional Systems:

EDTEC 400(3), EDTEC 448(3), EDTEC 566(3), LDT 441(3) (Sem: 3-8)

Bilingual Education and World Languages:

APLNG 482 IL(3), APLNG 491(3), APLNG 493 IL(3), CAS 271 US;IL(3), CAS 471 US;IL(3), LLED 445(3), WLED 411(3), WLED 412(3), WLED 414(3), WLED 422(3), or a foreign language credits at the 12th credit level or above (Sem: 3-8)

ENVIRONMENTAL EDUCATION TEACHING OPTION: (55-58 credits)**[18]**

PRESCRIBED COURSES (24 credits)

CHEM 101 GN(3), MATH 140 GQ(4) (Sem: 1-3)

BIOL 110 GN(4), BIOL 220W GN(4) (Sem: 1-4)

SCIED 411(3), SCIED 412(3), SCIED 457(3) (Sem: 5-7)

ADDITIONAL COURSES (7-8 credits)

CHEM 20(3) and CHEM 21(1); or CHEM 110 GN(3) and CHEM 111 GN(1) (Sem: 1-3)
BIOL 240W GN(4), WFS 407(3) or WFS 408(3) (Sem: 3-5)

SUPPORTING COURSES AND RELATED AREAS (24-26 credits)

Select two courses (6-8 credits) in environmental law, economics, management and policy (e.g., ECON 428; ERM 411, ERM 412, ERM 413; WFS 410, WFS 447, WFS 463) (Sem: 4-7)

Select 4 credits of an environmentally related course in Science Technology and Society (e.g., STS 47, STS 135 GS, STS 420, STS 460) (Sem: 5-7)

Select at least 14 credits from the cohort Teaching option (see Note 1)

Note 1: This option may only be completed in conjunction with another secondary teaching option, such as the Biological Science Teaching option.

Note 2: Students may complete multiple science teaching options concurrently by completing all of each option's requirements. The six science teaching options are: Biology, Chemistry, Earth and Space Science, Environmental Education, General Science, and Physics.

Note 3: Red Cross certification in First Aid and CPR (or their equivalent) must be earned for science certification.

GENERAL SCIENCE TEACHING OPTION: (38 credits) **[18]**

PRESCRIBED COURSES (22 credits)

CHEM 110 GN(3), CHEM 111 GN(1), CHEM 112 GN(3), CHEM 113 GN(1), MATH 140 GQ(4) (Sem: 1-3)

BIOL 110 GN(4) (Sem: 1-4)

SCIED 411(3), SCIED 412(3) (Sem: 5-7)

ADDITIONAL COURSES (16 credits)

BIOL 220W GN(4), BIOL 230W GN(4), or BIOL 240W GN(4) (Sem: 3-5)

MATH 141 GQ(4) or 4 credits of 200-level STAT GQ courses (Sem: 3-5)

PHYS 250 GN(4) and PHYS 251 GN(4) or PHYS 211 GN(4) and PHYS 212 GN(4) (Sem: 3-5)

Note 1: This option may only be completed in conjunction with another secondary teaching option, such as Biology.

Note 2: Students may complete multiple science teaching options concurrently by completing all of each option's requirements. The six science teaching options are: Biology, Chemistry, Earth and Space Science, Environmental Education, General Science, and Physics.

Note 3: Red Cross certification in First Aid and CPR (or their equivalent) must be earned for science certification.

MATHEMATICS TEACHING OPTION: (57-59 credits) **[18]**

PRESCRIBED COURSES (35-37 credits)

MATH 140 GQ(4), MATH 141 GQ(4) (Sem: 1-2)

MATH 220 GQ(2-3), MATH 311W(3-4) (Sem: 3-6)

MATH 310(3), MATH 312(3), MATH 414(3), MATH 471(4), MTHED 411(3), MTHED 412(3), MTHED 427(3) (Sem: 5-8)

ADDITIONAL COURSES (16 credits)

CMPSC 101 GQ(3) or CMPSC 121 GQ(3); MATH 230(4) or MATH 231(2) and MATH 232(2); STAT 401(3) or MATH 415(3) or 3 credits of MTHED from program list; MATH 435(3) or MATH 470(3); MATH 436(3) or MATH 441(3) (Sem: 5-8)

SUPPORTING COURSES AND RELATED AREAS (6 credits)

Select 6 credits from 400-level MATH or MTHED courses (Sem: 5-8)

PHYSICS TEACHING OPTION: (55-62 credits)[18]**PRESCRIBED COURSES (45-46 credits)**

CHEM 110 GN(3), CHEM 111 GN(1), CHEM 112 GN(3), CHEM 113 GN(1), MATH 140 GQ(4), MATH 141 GQ(4) (Sem: 1-3)

PHYS 211 GN(4), PHYS 212 GN(4) (Sem: 3-4)

MATH 220 GQ(2-3), PHYS 213 GN(2), PHYS 214 GN(2) (Sem: 3-6)

PHYS 237(3), PHYS 400(3), PHYS 419(3), SCIED 411(3), SCIED 412(3) (Sem: 5-7)

ADDITIONAL COURSES (6-12 credits)

PHYS 457(1-3), or PHYS 402(4) or PHYS 458(4); MATH 230(4) or MATH 231(2); MATH 250(3) or MATH 251(4) (Sem: 3-6)

SUPPORTING COURSES AND RELATED AREAS (4 credits)

Introductory biological sciences survey courses [e.g., BIOL 110 GN(4)] (Sem: 3-6)

Note 1: Students may complete multiple science teaching options concurrently by completing all of each option's requirements. The six science teaching options are: Biology, Chemistry, Earth and Space Science, Environmental Education, General Science, and Physics.

Note 2: Red Cross certification in First Aid and CPR (or their equivalent) must be earned for science certification.

SOCIAL STUDIES TEACHING OPTION: (57 credits)[18]**PRESCRIBED COURSES (24 credits)**

ECON 104 GS(3), GEOG 10 GN(3), GEOG 20 GS(3), HIST 20 GH;US(3), HIST 21 GH;US(3), PLSC 1 GS(3) (Sem: 1-6)

SSED 411(3), SSED 412(3) (Sem: 5-8)

ADDITIONAL COURSES (12 credits)

Select 3 credits from HIST 1 GH;IL(3) or HIST 10 GH;IL(3) (Sem: 1-6)

Select 3 credits from HIST 2 GH;IL(3) or HIST 11 GH;IL(3) (Sem: 1-6)

Select 6 credits from ANTH 45 GS;US;IL(3); ECON 102 GS(3); GEOG 30 GS;IL(3), GEOG 40 GS;IL(3), GEOG 160 GS(3) LDT 433(3), PLSC 3 GS;IL(3), PLSC 14 GS;IL(3), SOC 1 GS(3), SSED 200 US(3) (Sem: 1-8)

SUPPORTING COURSES AND RELATED AREAS (21 credits)

Select 6 credits of 400-level History (Sem: 5-8)

Select one concentration (15 credits) below:

Citizenship Education

Select 6 credits from: ANTH 45 GS;US;IL(3), ECON 102 GS(3), ECON 302 GS(3), ECON 304 GS(3), ECON 315 GS(3), ECON 323 GS(3), ECON 333 GS(3), ECON 342 GS(3), PLSC 3 GS;IL(3), PLSC 7 GS(3), PLSC 14 GS;IL(3), PLSC 110 GS;US(3), PLSC 123 GS;US;IL(3), PLSC 125(3), or PLSC 130 GS;US(3), SOC 1 GS(3) (Sem: 1-8)

Select 3 credits from: GEOG 30 GS;IL(3), GEOG 40 GS;IL(3), GEOG 120 GS;US;IL(3), GEOG 122 GH;US(3), GEOG 123 GS;IL(3), GEOG 124 GS;IL(3), GEOG 126 GS;US;IL(3), GEOG 128 GS;IL(3), GEOG 130 GS(3), or GEOG 160 GS(3) (Sem: 1-8)

Select 3 credits of History at the 100-level or above (Sem: 1-8)

SSED 200 US(3) (Sem: 1-8)

Civics and Government

PLSC 3 GS;IL(3) (Sem: 1-8)

PLSC 14 GS;IL(3) (Sem: 1-8)

Select 3 credits from: PLSC 7 GS(3), PLSC 110 GS;US(3), PLSC 123 GS;US;IL(3), PLSC 125(3), or PLSC 130 GS;US(3) (Sem: 1-8)

Select 6 credits of 400-level Political Science (Sem: 5-8)

Economics

ECON 102 GS(3) (Sem: 1-8)

ECON 302 GS(3) (Sem: 1-8)

ECON 304 GS(3) (Sem: 1-8)

Select 6 credits of 400-level Economics (Sem: 5-8)

Geography

Select 9 credits of Geography below the 100 level (Sem: 1-8)

Select 6 credits of 400-level Geography (Sem: 5-8)

Social Sciences

Select 9 credits of Anthropology, Psychology, and/or Sociology below the 400 level (Sem: 1-8)

Select 6 credits of 400-level Anthropology, Psychology, and/or Sociology (Sem: 5-8)

Note 1: Courses taken to meet Additional Courses and other Supporting Courses and Related Areas requirements cannot also be applied to the concentration. Different courses need to be selected for the concentration and Additional Courses and other Supporting Courses and Related Areas requirements.

[18] A grade of C or better per course is required for teacher certification.

Penn State Erie/Mathematics Option Only (3/7/07)

Last Revised by the Department: Spring Semester 2016

Blue Sheet Item #: 44-06-035

Review Date: 04/5/2016

R & T: 01/14/2014

UCA Revision #1: 9/1/06

UCA Revision #2: 7/30/07

ED

Director updated: 2/13/12

Software Engineering

Penn State Erie, The Behrend College (SE BD)

This major provides students with a strong foundation in software engineering through combination of classroom study, software development experience, and design projects. Design, analysis, verification, and maintenance of software systems are stressed. Built upon a core of science and mathematics courses, this major has the objective of educating graduates to be problem solvers. Students acquire the ability to work as members of a team toward successful attainment of a common goal, preparing them for work in industry or further study in graduate school. In addition, written and oral

communication skills are developed from an early stage, culminating in a senior design project that stresses communication as well as engineering content.

In addition to completing a broad-based science core in mathematics, chemistry, and physics, students pursue their interest in software engineering by studying principles in computer programming, object-oriented design, software design, software verification, information systems, operating systems, and data communications. The program has a capstone software design project that requires students to work together on teams to design, plan, manage, and implement a software design project.

Entrance Requirement: In addition to the Carnegie unit and minimum GPA requirements described by University policies, all students applying for entrance to any of the engineering majors at The Behrend College must have at least a 2.0 cumulative GPA by the end of the semester prior to applying for entrance to the major and have completed, with a minimum grade of C: CHEM 110 GN(3), MATH 140 GQ(4), MATH 141 GQ(4), and PHYS 211 GN(4). These courses must be completed by the end of the semester during which the admission to major process is carried out.

For the B.S. degree in Software Engineering, a minimum of 126 credits is required. A student enrolled in this major must earn a grade of C or better in each 300- and 400-level course in the major.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

GENERAL EDUCATION: 45 credits
(21 of the 45 credits are included in the REQUIREMENTS FOR THE MAJOR)
(See description of General Education in this bulletin.)

FIRST-YEAR SEMINAR:
(Included in ELECTIVES)

UNITED STATES CULTURES AND INTERNATIONAL CULTURES:
(Included in GENERAL EDUCATION course selection)

WRITING ACROSS THE CURRICULUM:
(Included in REQUIREMENTS FOR THE MAJOR)

ELECTIVES: 1 credit

REQUIREMENTS FOR THE MAJOR: 101-102 credits
(This includes 21 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GWS courses; 3 credits of GS courses.)

PRESCRIBED COURSES (86 credits)
CHEM 110 GN(3)[1], CHEM 111 GN(1), CMPSC 121 GQ(3), CMPSC 122(3)[1] (Sem: 1-2)
MATH 140 GQ(4)[1], MATH 141 GQ(4)[1], MATH 220 GQ(2-3), MATH 250(3), PHYS 211 GN(4)[1], PHYS 212 GN(4) (Sem: 1-4)
CMPEN 271(3)[1], CMPEN 275(1), CMPSC 360(3)[1], ENGL 202C GWS(3), MIS 336(3)[1], SWENG 311(3)[1] (Sem: (3-4)
CMPEN 441(3)[1], CMPSC 461(3)[1], CMPSC 465(3)[1], STAT 301 GQ(3)[1], SWENG 452(3)[1], SWENG 411(3)[1], SWENG 421(3)[1], SWENG 431(3)[1] Sem: (5-6)
CMPEN 351(3)[1], CMPEN 461(3)[1], SWENG 480(3)[1], SWENG 481(3)[1], MGMT 301(3)[1] (Sem: (7-8)

ADDITIONAL COURSES (6-7 credits)
ECON 102 GS(3) or ECON 104 GS(3) (Sem: 3-4)
EE 210(4) or EE 211(3) (Sem: 3-4)

SUPPORTING COURSES AND RELATED AREAS (9 credits)

Select 9 credits of technical elective courses from school-approved list. (Sem: 6-8)

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Fall Semester 2008

Blue Sheet Item #: 36-04-012

Review Date: 6/9/08

UCA Revision #1: 8/14/06

UCA Revision #2: 7/30/07

BD

Associate Degrees

Electrical Engineering Technology

Penn State Erie, The Behrend College

University College: Penn State Fayette, Penn State York (2 EET)

PROFESSOR DAVID LOKER, *Program Coordinator, Penn State Erie, The Behrend College*

PROFESSOR ANDRZEJ GAPINSKI, *Program Coordinator, Penn State Fayette*

PROFESSOR MICHAEL MARCUS, *Program Coordinator, Penn State York*

PROFESSOR IVAN E. ESPARRAGOZA, *Director of Engineering Technology and Commonwealth Engineering, Penn State Brandywine*

PROFESSOR SVEN BILÉN, *Head, School of Engineering Design, Technology, and Professional Programs, Penn State University Park*

The Electrical Engineering Technology (2 EET) major helps prepare graduates for technical positions in the expanding fields of electronics, computers and microprocessors, instrumentation, and electrical equipment. The primary objective is to provide a broad foundation of theoretical and practical knowledge in the areas of electrical and electronic circuits, digital circuits, computers, electrical machinery, and programmable logic controls.

Program Educational Objectives

To produce graduates who, during the first few years of professional practice, will:

1. Demonstrate broad knowledge of electrical/electronics engineering technology practices to support design, application, installation, manufacturing, operation, and maintenance as required by their employer,
2. Apply basic mathematical and scientific principles for technical problem solving in areas which may include circuit analysis of both analog and digital electronics, microprocessors, programmable logic control, and electrical machines,
3. Utilize computers and software in a technical environment,
4. Demonstrate competence in written and oral communication,
5. Work effectively as an individual and as a member of a multidisciplinary team,
6. Show awareness of social concerns and ethical/professional responsibilities in the workplace, and
7. Matriculate into a baccalaureate degree and/or continue their professional training and adapt to changes in the workplace, through additional formal or informal education.

Program Outcomes (Student Outcomes)

Students should possess

- a) an ability to apply the knowledge, techniques, skills and modern tools of the disciplines to electrical engineering technology activities,
- b) an ability to apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require limited application of principles but extensive practical knowledge,
- c) an ability to conduct standard tests and measurements, and to conduct, analyze and interpret experiments,
- d) an ability to function effectively as a member of a technical team,
- e) an ability to identify, analyze and solve narrowly defined engineering technology problems,
- f) an ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature,
- g) an understanding of the need for and an ability to engage in self-directed continued professional development, including engineering standards,
- h) an understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity,
- i) a commitment to quality, timeliness and continuous improvement.

In addition, 2EET graduates must demonstrate knowledge and hands-on competence appropriate to the objectives of the program in:

A. the application of circuit analysis and design, computer programming, associated software, analog and digital electronics, and microcomputers, and engineering standards to the building, testing, operation, and maintenance of electrical/electronic(s) systems; and

B. the application of natural sciences and mathematics at or above the level of algebra and trigonometry to the building, testing, operation, and maintenance of electrical/electronic systems.

Graduates of the Electrical Engineering Technology major may qualify for admission to the baccalaureate degree majors in Electrical Engineering Technology offered at Penn State Harrisburg, Capital College; the baccalaureate degree major in Electrical and Computer Engineering Technology at Penn State Erie, The Behrend College; or the baccalaureate degree major in Electro-Mechanical Engineering Technology offered at Penn State Altoona, Penn State Berks, Penn State New Kensington or Penn State York. Two baccalaureate tracks are available to streamline the transition to these degree programs. Students interested in pursuing the baccalaureate degree major of Electrical Engineering Technology at Penn State Harrisburg should follow track c. A general track is also provided for students who decide not to continue their engineering technology education at the baccalaureate level.

ENTRANCE REQUIREMENTS: Students must have a minimum 2.0 GPA to change to this Associate degree after admission to the University.

For the Associate in Engineering Technology degree in Electrical Engineering Technology, a minimum of 66 credits is required. This program is accredited by the Engineering Technology Accreditation Commission of ABET, www.abet.org.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

GENERAL EDUCATION: 21 credits

(12-15 of these 21 credits are included in the REQUIREMENTS FOR THE MAJOR)
(See General Education description in front of *Bulletin*.)

REQUIREMENTS FOR THE MAJOR: 57-62 credits

(This includes 12-15 credits of General Education courses: 3 credits of GN courses; 3 credits of GQ courses; 6 credits of GWS courses, 0-3 credits of GH or GS)

PRESCRIBED COURSES (23 credits)

CMPET 117(3)[1], CMPET 120(1)[1] (Sem: 1-2)

CAS 100 GWS(3), CMPET 211(3), EE_T 114(4)[1], EE_T 118(1)[1], EET 212(4), EET 214(3), EET 215(1) (Sem: 3-4)

ADDITIONAL COURSES (34-39 credits)

ENGL 015 GWS(3); ENGL 030 GWS(3) (Sem: 1-2)

MATH 022 GQ(3)[2] and MATH 026 GQ(3)[2]; or MATH 040 GQ(5)[2]; or MATH 081 GQ(3)[2] and MATH 082 GQ(3)[2] (Sem: 1-2)

PHYS 150 GN(3); PHYS 211 GN(4); PHYS 250 GN(4) (Sem:3-4)

Select at least 22-26 credits from one of the following three tracks: a. General Track, b. Baccalaureate Electrical and Computer Engineering Technology (ECET) Track or c. Baccalaureate Electro-Mechanical Engineering Technology (EMET) Track.

a. General Track:

(This includes 3 credits of General Education courses: 3 credits of GH or GS)

EDSGN 100(3); EET 105(3), IET 101(3), MCHT 111(3) (Sem: 1-2)

EET 275(3); EMET 230(3) (Sem: 3-4)

PHYS 151 GN(3); PHYS 212 GN(4); PHYS 251 GN(4); CHEM 110 GN(3), CHEM 111 GN(1) (Sem: 3-4)

STS 200 GS(3); STS 233/PHIL 233 GH(3); STS 245 GS;IL(3) (Sem: 3-4)

Select 3-4 credits in consultation with your adviser from the approved program list. (Sem: 3-4)

b. Baccalaureate Electrical and Computer Engineering Technology (ECET) Track:

CMPET 005(1), EET 002(1), EET 101(3), EET 109(1) (Sem: 1-2)

CHEM 110 GN(3), CHEM 111 GN(1), EET 275(3), EGT 119(2) (Sem: 3-4)

MATH 083 GQ(4) or MATH 140 GQ(4) (Sem: 3-4)

Select 3 credits of General Education natural science GN or MATH 210 GQ(3) (Sem: 3-4)

c. Baccalaureate Electro-Mechanical Engineering Technology (EMET) Track [3]:

((This includes 3 credits of General Education courses: 3 credits of GH or GS)

EDSGN 100(3); EET 105(3), IET 101(3), MCHT 111(3) (Sem: 1-2)

EET 275(3); EMET 230(3) (Sem: 3-4)

MATH 083 GQ(4) or MATH 140 GQ(4) (Sem: 3-4)

PHYS 151 GN(3); PHYS 212 GN(4); PHYS 251 GN(4); CHEM 110 GN(3), CHEM 111 GN(1) (Sem: 3-4)

STS 200 GS(3); STS 233/PHIL 233 GH(3); STS 245 GS;IL(3) (Sem: 3-4)

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

[2] A student planning to re-enroll into the baccalaureate degree major of Electro-Mechanical Engineering Technology (EMET), after graduation from the 2 EET program, must receive a grade of C or better in order to meet requirements of the EMET degree.

[3] A student planning to re-enroll into the baccalaureate degree major of Electrical Engineering Technology at Penn State Harrisburg, after graduation from the 2 EET program, should follow Track c. They should select MATH 140 GQ(4) instead of MATH 083 GQ(4).

Last Revised by the Department: Spring Semester 2017

Blue Sheet Item #: 45-04-048B

Review Date: 1/10/2017

UCA Revision #1: 8/3/06

UCA Revision #2: 7/27/07

Comments

EN

General Business

Penn State Erie, The Behrend College (2GBBC)

PROFESSOR JOHN M. MAGENAU III, *Director, School of Business, Behrend College*

The associate degree major in General Business offers an introduction to several aspects of business. In addition, it provides a foundation that allows those students who qualify for admission to baccalaureate degree programs in business to make a smooth transition into four-year business majors offered at Penn State Erie, The Behrend College. The business coursework required by the major introduces students to basics of accounting, economics, management information systems, quantitative business analysis, business law, the social and ethical environment of business, finance, management, marketing, and supply chain management. To complete the major, students have the option of earning a certificate in Oracle or SAP, Enterprise Resource Planning (ERP) or Financial Planning. The general education and other requirements of the major provide an opportunity for students to strengthen their skills in oral and written communication and quantitative reasoning which are essential for success in business careers.

ENTRANCE REQUIREMENTS: Students must have a minimum 2.0 GPA to change to this Associate degree after admission to the University.

For the Associate in Science degree in General Business, a minimum of 61 credits is required.

Recommended Scheduling by Semester Standing given like (Sem: 1-2)

GENERAL EDUCATION: 21 credits

(12 of these 21 credits are included in the REQUIREMENTS FOR THE MAJOR)

See description of General Education in this bulletin.)

FIRST YEAR SEMINAR:

(Included in ELECTIVES or GENERAL EDUCATION course selections)

UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

(Included in ELECTIVES, GENERAL EDUCATION course selection, or REQUIREMENTS FOR THE MAJOR)

WRITING ACROSS THE CURRICULUM:

(Included in GENERAL EDUCATION course selections or REQUIREMENTS FOR THE MAJOR)

ELECTIVES: 0-1 Credit

REQUIREMENTS FOR THE MAJOR: 51-52 credits

(This includes 12 credits of General Education courses; 6 credits of GWS courses; 3 credits of GQ courses; 3 credits of GS courses.)

PRESCRIBED COURSES (34 credits)

ENGL 015 GWS(3), CAS 100 GWS(3) (Sem: 1-2)

ACCTG 211(4)**[1]**, ECON 102 GS(3), ECON 104 GS(3), ENGL 202D GWS(3), MIS 204(3)**[1]**
(Sem: 2-3)

FIN 301(3)**[1]**, MGMT 301(3)**[1]**, MKTG 301(3)**[1]**, SCM 301(3)**[1]** (Sem: 3-4)

ADDITIONAL COURSES (11-12 credits)

MATH 021 GQ(3), MATH 022 GQ(3), or MATH 110 GQ(4) (Sem: 1-2)

SCM 200 GQ(4) or STAT 200 GQ(4) (Sem: 2-3)

BA 243(4) or BA 241(2) and BA 242(2) (Sem: 2-4)

SUPPORTING COURSES AND RELATED AREAS (6 credits)

Select 6 credits from one of the following supporting course areas: General Education, Financial Planning**[1]**, Oracle Business Suite Certificate**[1]**, and SAP Certificate**[1]**, or other 300-or 400-level business courses**[1]** in consultation with a faculty advisor (Sem: 3-4)

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

Last Revised by the Department: Spring Semester 2017

Blue Sheet Item #: 45-04-035A

Review Date: 1/10/2017

UCA Revision #1: 8/8/06

BD

Letters, Arts, and Sciences

Abington College (2LAAB)

Altoona College (2LAAL)

Penn State Erie, The Behrend College (2LABC)

Berks College (2LABL)

Penn State Harrisburg (2LACA)

University College (2LACC): Penn State Brandywine, Penn State DuBois, Penn State Fayette,

Penn State Hazleton, Penn State Mont Alto, Penn State New Kensington, Penn State

Schuylkill, Penn State Shenango Valley, Penn State Wilkes-Barre, Penn State

Worthington-Scranton

University Park, College of the Liberal Arts (2 LAS)

World Campus

The objectives of the Letters, Arts, and Sciences major are to broaden the student's understanding, interests, and skills; to help the student become a more responsible, productive member of the family and community; and to offer a degree program with sufficient electives to permit some specialization according to the student's interests or career plans. Letters, Arts, and Sciences is a complete two-year degree major. However, graduates who later seek admission to baccalaureate degree majors may apply baccalaureate credits toward the new degree.

In addition to a wide variety of baccalaureate majors offered at University Park campus,

graduates of the Letters, Arts, and Sciences major may qualify for admission to the baccalaureate degree majors in Behavioral Sciences, Elementary Education, Humanities, or Public Policy offered at Penn State Harrisburg. Or they may qualify for any of a large number of baccalaureate degree majors offered by Penn State Erie, The Behrend College, in business, the liberal arts, and sciences.

ENTRANCE REQUIREMENTS: Students must have a minimum 2.0 GPA to change to this Associate degree after admission to the University.

For the Associate in Arts degree in Letters, Arts, and Sciences, a minimum of 60 credits is required.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

GENERAL EDUCATION: 21 credits

(6 of these 21 credits are included in the REQUIREMENTS FOR THE MAJOR)

(See description of General Education in this bulletin.)

ELECTIVES: 15 credits

REQUIREMENTS FOR THE MAJOR: 30 credits#[\[1\]](#)

(This includes 6 credits of General Education GWS courses.)

PRESCRIBED COURSES (6 credits)

ENGL 015 GWS(3) (Sem: 1-2)

CAS 100 GWS(3) (Sem: 3-4)

ADDITIONAL COURSES (3 credits)

ENGL 202A GWS(3), ENGL 202B GWS(3), ENGL 202C GWS(3), or ENGL 202D GWS(3) (Sem: 3-4)

SUPPORTING COURSES AND RELATED AREAS (21 credits)

Select 3 credits in any course designated as arts* (Sem: 1-4)

Select 3 credits in any course designated as humanities* (Sem: 1-4)

Select 3 credits in any course designated as social and behavioral sciences* (Sem: 1-4)

Select 3 credits in any course designated as physical, biological, or earth sciences* (Sem: 1-4)

Select 9 credits in any one of the following areas*: arts, humanities, social and behavioral sciences, natural sciences and quantification, and foreign language skills. (If foreign language courses are chosen, it is recommended that these courses be in one foreign language sequence.) (Sem: 1-4)

[1]A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

#The required credits of General Education and Requirements for the Major must be baccalaureate-level courses. For students intending to seek admission to a baccalaureate program upon graduation, it is recommended that most, if not all, of the courses be at the baccalaureate level. For those students who will seek a bachelor of arts degree upon graduation from Letters, Arts, and Sciences, it is strongly recommended that a foreign language be taken since admission to a bachelor of arts program in the College of the Liberal Arts requires one college-level course, or the equivalent, in a foreign language.

*Courses that will satisfy the arts, humanities, social and behavioral sciences, natural sciences, and quantification requirements are defined on the Letters, Arts, and Sciences checksheet, which may be obtained from the College of the Liberal Arts associate dean for undergraduate studies at the University Park campus or from any Letters, Arts, and Sciences representative at other locations.

Last Revised by the Department: Spring Session 2017

Blue Sheet Item #: 45-04-071B

Review Date: 1/10/17

Reviewed by Publications: 06/23/06

LA

Mechanical Engineering Technology

Penn State Erie, The Behrend College

University College: Penn State DuBois, Penn State York (2 MET)

PROFESSOR SVEN BILÉN, *Head, School of Engineering Design, Technology, and Professional Programs, Penn State University Park*

PROFESSOR IVAN ESPARRAGOZA, *Director of Engineering Technology and Commonwealth Engineering, Penn State University Park*

PROFESSOR FREDRICK NITTERRIGHT, *Program Coordinator, Penn State Erie, The Behrend College*

PROFESSOR DOUGLAS MILLER, *Program Coordinator, Penn State DuBois*

PROFESSOR MARSHALL COYLE, *Program Coordinator, Penn State York*

This major helps graduates prepare for technical positions in manufacturing, machine and tool design, computer drafting and design, computer integrated manufacturing, materials selection and processes, technical sales, and other related industries in mechanical applications. The primary objective of the program is to provide a broad foundation in mechanical systems and applications; computer systems in drafting (CAD), manufacturing (CAM), and automation and robotics (CIM); production and product design; mechanics, dynamics, and strength of materials. Graduates of the Associate Degree in Mechanical Engineering Technology program will:

Practice in the areas of applied design, manufacturing, testing, evaluation, technical sales, or 2D and 3D modeling.

Communicate effectively and work collaboratively in multi-disciplinary teams.

Learn and adapt to changes in a professional work environment.

Demonstrate a high standard of professional ethics and be cognizant of social concerns as they relate to the practice of engineering technology.

Graduates of this major may qualify for admission to the baccalaureate degree majors in Mechanical Engineering Technology and Structural Design and Construction Engineering Technology programs at Penn State Harrisburg; the Mechanical Engineering Technology and the Plastics Engineering Technology programs at Penn State Erie, The Behrend College; or the baccalaureate degree major in Electro-Mechanical Engineering Technology offered at Penn State Altoona, Penn State Berks, Penn State New Kensington, or Penn State York. Two tracks are available to streamline the transition to these baccalaureate degree programs. A general track is provided for students who do not plan to continue their engineering technology education at the baccalaureate level.

ENTRANCE REQUIREMENTS: Students must have a minimum 2.0 GPA to change to this Associate degree after admission to the University.

For the Associate in Engineering Technology degree in Mechanical Engineering Technology, a minimum of 65 credits is required. This program is accredited by the Engineering Technology Accreditation Commission of ABET, www.abet.org.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

GENERAL EDUCATION: 21 credits

(12-15 of these 21 credits are included in the REQUIREMENTS FOR THE MAJOR)
(See description of General Education in front of *Bulletin*.)

REQUIREMENTS FOR THE MAJOR: 54-64 credits

(This includes 12-15 credits of General Education courses; 3 credits of GN courses; 3 credits of GQ courses; 6 credits of GWS courses, 0-3 credits of GH or GS.) A First-Year Seminar is required for students at Penn State Behrend.

PRESCRIBED COURSES (23 credits)

CAS 100 GWS(3), IET 101(3)[1], MCHT 111(3)[1] (Sem: 1-2)
IET 215(2), IET 216(2), MCHT 213(3), MCHT 214(1)[2], MET 206(3)[1], MET 210(3), (Sem: 3-4)

ADDITIONAL COURSES (31-41 credits)

ENGL 015 GWS(3); ENGL 030 GWS(3) (Sem: 1-2)
MATH 022 GQ(3), MATH 026 GQ(3); MATH 040 GQ(5)[2][3]; MATH 081 GQ(3)[2][3], MATH 082 GQ(3)[2][3] (Sem: 1-2)
PHYS 150 GN(3); PHYS 211 GN(4); PHYS 250 GN(4) (Sem: 1-2)
PHYS 151 GN(3); PHYS 212 GN(4); PHYS 251 GN(4) (Sem: 1-2)

Select at least 19-24 credits from one of the following three tracks: a. General Track, b. Baccalaureate Electro-Mechanical Engineering Technology (EMET) Track, or c. Baccalaureate Mechanical Engineering Technology (METBD or M E T) Track.

a) General Track

EDSGN 100(3), EET 105(3), MET 107(3) (Sem: 1-2)
EDSGN 110(2); EGT 114(2) (Sem: 1-2)
STS 200 GS(3); STS 233 GH(3); STS 245 GS;IL(3) (Sem: 3-4)

Select at least 6 credits from the approved supporting course list for Track a.

b) Baccalaureate Electro-Mechanical Engineering Technology (EMET) Track

COMPET 117(3)[2], COMPET 120(1)[2], EDSGN 100(3), EET 105(3) (Sem: 1-2)
EDSGN 110(2); EGT 114(2) (Sem: 1-2)
EET 114(4)[2], EET 118(1)[2] (Sem: 3-4)
MATH 083 GQ(4)[2][3] or MATH 140 GQ(4)[2][3] (Sem: 3-4)
STS 200 GS(3); STS 233/PHIL 233 GH(3); STS 245 GS;IL(3) (Sem: 3-4)

c) Baccalaureate Mechanical Engineering Technology (METBD or M E T) Track

EGT 120(3), EGT 121(3), MET 107(3) (Sem: 1-2)
EET 100(3) (Sem: 3-4)

Select 1 credit of First-Year Seminar (Sem: 1-2)

Select 6 credits from the approved supporting course list for Track c (Sem: 3-4)

[1] A student enrolled in this major must receive a grade of C or better, as specified in Senate Policy 82-44.

[2] Students pursuing the baccalaureate track must take MATH 022 and MATH 026

[3] Students who choose to take MATH 081 and MATH 082 must select MATH 083.
Students who choose to take MATH 022 and MATH 026 must select MATH 140.

Last Revised by the Department: Spring Semester 2017

Blue Sheet Item #: 45-04-048C

Review Date: 1/10/2017

UCA Revision #1: 8/3/06

UCA Revision #2: 7/30/07

Comments

EN

Minors

Accounting Minor

Penn State Erie, The Behrend College (ACNTG), Ash Deshmukh (avd1@psu.edu)

Penn State Abington, Dr. Feng Zhang, fzz34@psu.edu

The accounting minor requires students to complete 16 additional credits in accounting beyond the 4 credits required in ACCTG 211. It is designed to introduce students to advanced topics in financial and cost accounting, as well to the basics of income tax accounting for individuals. This minor can provide an enhanced understanding of accounting information flows, costing systems, and the general tax environment to students majoring in other business areas, and it is a particularly good compliment to the finance and management information systems majors. On its own, it will not generally enable students to meet the requirements for professional licensing in accounting.

A grade of C or better is required for all courses in the minor.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

REQUIREMENTS FOR THE MINOR: 20 credits

PRESCRIBED COURSES (14 credits)

ACCTG 211(4) (Sem: 3-4)

ACCTG 310(3), ACCTG 371(4), ACCTG 472(3) (Sem: 5-6)

SUPPORTING COURSES AND RELATED AREAS (6 credits)

Select 6 credits of additional ACCTG courses, at least 3 credits at the 400-level (Sem: 3-8)

Last Revised by the Department: Fall Semester 2010

Blue Sheet Item #: 39-01-053

Review Date: 08/24/2010

UCA Revision #2: 7/26/07

BD

Applied Economics Minor

Penn State Erie, The Behrend College (APECN)

Contact(s): Greg Filbeck (mgf11@psu.edu)

The minor in economics requires completion of 18 credit hours of coursework in economics. In addition to the introductory courses (ECON 102 and ECON 104), economics minors must complete 12 semester hours in economics elective courses at the 300/400 level. Note that at least 6 of those credit hours must be at the 400 level. The economics minor is a strong complement to virtually any major, including those within, and outside of, the School of Business. Since most School of Business majors will, as part of their major, already have earned 6 to 9 credits toward the economics minor, earning a minor in economics is particularly attractive for these students. The economics minor provides a general introduction to economic thought helping students better understand a variety of contemporary economic issues. The minor can enhance the market value of a major and can provide students with options and opportunities beyond those offered by the major program of study.

A grade of C or better is required for all courses in the minor.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

REQUIREMENTS FOR THE MINOR: 18 credits

PRESCRIBED COURSES (6 credits)

ECON 102 GS(3), ECON 104 GS(3) (Sem: 1-6)

SUPPORTING COURSES AND RELATED AREAS (12 credits)

Select 6 credits from ECON courses (Sem: 3-6)

Select 6 credits of 400-level ECON courses (Sem: 3-8)

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 42-01-021

Review Date: 08/20/13

BD

Biology Minor

Penn State Erie, The Behrend College (BIOBD)

Contact: Beth Potter, bap16@psu.edu

The minor in Biology gives students opportunities to combine a background in the biological sciences with other majors. The minor can provide valuable expertise in cross-disciplinary areas, such as mathematical biology, biochemistry, and biophysics; or a biological grounding in fields like psychology or ecology.

A grade of C or better is required for all courses in the minor.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

REQUIREMENTS FOR THE MINOR: 18 credits

PRESCRIBED COURSES (4 credits)

BIOL 110 GN(4) (Sem: 1-4)

ADDITIONAL COURSES (8 credits)

Select 8 credits from BIOL 220W GN(4), BIOL 230W GN(4), or BIOL 240W GN(4) (Sem: 1-4)

SUPPORTING COURSES AND RELATED AREAS (6 credits)

Select 6 credits of additional 400-level BIOBD courses, excluding BIOL 492(1), BIOL 496(1-12), BIOL 495(1-12) and BIOL 496(1-18) (Sem: 5-8)

Last Revised by the Department: Fall Semester 2001

UCA Revision #2: 7/26/07

BD

Chemistry Minor

*Penn State Berks, Ivan Shibley, ias1@psu.edu
University Park, Eberly College of Science (CHEM)*

Contact: Altoona College - Richard Bell, rcb155@psu.edu; Penn State Erie, The Behrend College - Grace Galinato, mig11@psu.edu; Eberly College of Science - Mark Maroncelli, mxm11@psu.edu

The minor in Chemistry complements degrees in other areas of physical and biological science and introduces students to fundamental principles of chemistry through lecture and laboratory course work.

A grade of C or better is required for all courses in the minor.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

REQUIREMENTS FOR THE MINOR: 26-28 credits

PRESCRIBED COURSES: (16 credits)

CHEM 110 GN(3), CHEM 111 GN(1), CHEM 112 GN(3), CHEM 113 GN(1), CHEM 210(3), CHEM 212(3), CHEM 213(2) (Sem: 1-4)

ADDITIONAL COURSES: (10-12 credits)

Select 4 credits from CHEM 221(4) or 6 credits from CHEM 450(3) or CHEM 466(3) and CHEM 452(3)(Sem: 3-8)

Select 6 credits from 400-level CHEM not used above and excluding CHEM 494(1-10), CHEM 494H(1-10), CHEM 495(1-18), and CHEM 496(1-18) (Sem: 5-8)

Last Revised by the Department: Fall Semester 2014

Blue Sheet Item #: 43-04-102

Review Date: 01/13/2015

UCA Revision #1: 9/20/06

SC

Civic and Community Engagement Minor

College of the Liberal Arts (CIVCM)

University Park - Rosa Eberly, rae2@psu.edu (Coordinator of the program)

Penn State Abington - Gary Calore, gsc1@psu.edu

Penn State Brandywine - Lynn Hartle, lch1@psu.edu

Penn State Erie - Dawn Blasko, dgb6@psu.edu

Penn State Greater Allegheny - Michael Vicaro, mpv2@psu.edu

Penn State Beaver - JoAnn Chirico, jxc64@psu.edu

Penn State Lehigh Valley - Mary Hutchinson, mcl6@psu.edu

Penn State Schuylkill - Elinor Madigan, emm17@psu.edu

Penn State Mont Alto - Jacqueline Schwab, sen@psu.edu

Penn State Berks - Laurie Grobman, leg8@psu.edu

Administered by a program faculty drawn from across the University, the Intercollege Minor in Civic and Community Engagement is appropriate to undergraduate students seeking to apply domains of knowledge from their majors or General Education programs to issues of consequence beyond the classroom. In the minor students integrate democratic, professional, and creative development. In particular, the minor serves to encourage, recognize, and systematize student participation in public service or problem-based fieldwork and research that:

is substantial, sustained, and includes structured opportunities for student reflection and critical assessment; and

is integrated with and supported by traditional, classroom-based course work.

Specifically, the minor consists of a balanced program of fieldwork experience and supporting course work that is selected with the advice and consent of a minor adviser and approved on behalf of the minor by a program faculty. Fieldwork experiences are selected from a list of eligible courses (or approved comparable alternatives), and supporting course work includes a conceptual foundations course that provides students with a critical orientation to contemporary issues and themes in public scholarship. The minor culminates with an approved capstone project, which may be a significant paper, or annotated portfolio, or other demonstration of substantial assessment and integration of the minor experience and the broader issue of application of academic theory and practice in the civic community.

The Civic and Community Engagement Minor Committee is authorized to award a minor certificate to any undergraduate who, in addition to satisfying the degree requirements of his or her baccalaureate major, satisfies the requirements for the Civic and Community Engagement Minor. The completion of the minor is reflected by a formal notation of the student's official record at the time of graduation. To enter the program, a student must submit an application to the committee. Applicants to the minor in Civic and Community Engagement:

Must have a minimum overall GPA of 2.0.

Must present a proposed plan of study in the application process. The plan of study should include student's contact information and GPA, a brief statement of student's learning objectives in connection with the major or other proposed curricular concentration, such as minor or general education, proposed supporting courses (include description of course and syllabus if available), proposed fieldwork courses (include information about fieldwork, supervision, and reflection and assessment), and minor adviser endorsement of the plan. Minor proposals must be approved by

the student's minor adviser and the committee.

May apply no more than 9 credits toward the minor that also count toward the major. Students with multiple majors may have some additional flexibility. Past fieldwork experiences and completed courses may be retroactively included in the plan of study, but must be approved by the minor adviser and the committee.

A grade of C or better is required for all courses in the minor.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

REQUIREMENTS FOR THE MINOR: 18 credits

PRESCRIBED COURSES (3 credits)

CIVCM 211 GS(3) (Sem: 5)

SUPPORTING COURSES AND RELATED AREAS (15 credits)

at least 6 credits must be taken at the 400 level

Select 6-9 credits from Program List of public scholarship courses, of which at least 3 credits involve supervised field experience and of which 3-6 credits are public issues and democracy courses, or equivalents chosen in consultation with minor adviser (Sem: 5-8)

Select 3-6 credits in related areas in consultation with minor adviser (Sem: 5-8)

Select 3 credits of public scholarship capstone work at the 400 level in consultation with minor adviser (Sem: 7-8)

Last Revised by the Department: Summer Session 2007

Blue Sheet Item #: 35-04-233

Review Date: 1/16/07

UE

Communication Arts and Mass Media Minor

Penn State Erie, The Behrend College (CASCM)

Contact(s): Rod Troester, rlt5@psu.edu

The CASCM minor offers students the opportunity to balance a liberal arts foundation and orientation to communication with the media and production theory and skills necessary for supplementing career fields requiring effective oral, written and media production skills. This minor would complement majors in management, marketing, education, sales, training and development, government, human resources, and development.

Students must apply for entrance to the minor after achieving fifth semester classification. This minor is not available to students enrolled in any of the majors in the College of Communications or any other communication major including: CAS, CASBL, CASCC, CCBA, CCCC, COMAL, COMBA, COMCC, or COMCL.

A grade of C or better is required for all courses in the minor.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

REQUIREMENTS FOR THE MINOR: 18 credits

ADDITIONAL COURSES (6 credits)

Select 3 credits from COMM 100 GS(3), COMM 110 GH(3), COMM 118 GS(3), COMM 150 GA(3),

or COMM 251(3) (Sem: 1-2)

Select 3 credits from CAS 101 GS(3), CAS 201 GH(3), CAS 202 GS(3), or CAS 252(3) (Sem: 1-2)

SUPPORTING COURSES AND RELATED AREAS: (12 credits)

Select 6 select credits from any CAS or COMM 200-300 level courses. (Sem: 3-6)

Select 6 credits from any CAS or COMM 400 level courses (Sem: 5-8)

Last Revised by the Department: Fall Semester 2013

Blue Sheet Item #: 42-02-009

Review Date: 10/08/2013

UCA Revision #2: 7/27/07

BD

Computer Engineering Minor

Penn State Erie, The Behrend College (CENBD)

Contact(s): Tom Hemminger, tlh5@psu.edu

This program of study provides graduates with a strong background in computer engineering. Upon completion of the minor, graduates will have developed an understanding of the operation and design of computers. This objective is accomplished through a combination of classroom study, computer-related projects, and laboratory experience. Analysis and design of computer hardware and software systems are stressed. The program requires completion of mandatory courses in analog and digital circuits, microprocessors, transistor logic, and computer programming. Students complete the minor by selecting technical electives in computer hardware and software engineering.

A grade of C or better is required for all courses in the minor.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

REQUIREMENTS FOR THE MINOR: 24 credits

PRESCRIBED COURSES: (11 credits)

EE 210(4) (Sem: 1-4)

EE 310(4), EE 316(3) (Sem: 5-6)

ADDITIONAL COURSES: (13 credits)

Select 3 credits from CMPSC 201 GQ(3) or CMPSC 202 GQ(3) (Sem: 1-4)

Select 4 credits from CMPEN 271(3) and CMPEN 275(1) (Sem: 5-6)

Select 6 credits from CMPEN 352(3), CMPEN 411(3), CMPEN 431(3), CMPEN 441(3), CMPEN 461(3), CMPSC 450(3), CMPSC 479(3), or SWENG 411(3)

Last Revised by the Department: Fall Semester 2001

Reviewed by Publications: 06/23/06

UCA Revision #2: 7/27/07

BD

Computer Science Minor

Penn State Erie, The Behrend College (CSCBD)

Contact(s): Meng Su, mus11@psu.edu

The computer science minor at Behrend establishes a strong conceptual framework in computer science for students in other majors, so they can apply computer science methods and techniques to their primary field of study. The minor begins with the second level course in computer programming (CMPSC 122), the choice of a course in Object-Oriented Web based programming or design (CMPSC 221 or SWENG 311), a course in discrete math for computer science (CMPSC 360), and a course in Data Structures and Algorithms (CMPSC 465). These twelve credits are followed with an additional six credits of 400-level work in computer science (CMPSC). (Please note that CMPSC 121 and MATH 140 are prerequisites for CMPSC 122.)

Computing has become a critical aspect of most disciplines. This minor provides students with the opportunity to develop computing expertise which can then be applied to their field of study, thus enhancing job placement opportunities after graduation or better preparing the student to pursue graduate work in computing intensive sub-disciplines of their major. The emphasis is on building a conceptual framework which will allow the student to continue to learn new computing techniques beyond graduation in this rapidly evolving discipline.

A grade of C or better is required for all courses in the minor.

Scheduling recommendation by Semester Standing given like (Sem: 1-2)

REQUIREMENTS FOR THE MINOR: 18 credits

PRESCRIBED COURSES (9 credits)

CMPSC 122(3) (Sem: 2-4)

CMPSC 360(3), CMPSC 465(3) (Sem: 3-6)

ADDITIONAL COURSES (3 credits)

Select 3 credits from CMPSC 221(3), CMPSC 312 (3), or SWENG 311(3) (Sem: 3-8)

SUPPORTING COURSES AND RELATED AREAS (6 credits)

Select 6 credits of 400-level (below 490) CMPSC courses (Sem: 7-8)

Last Revised by the Department: Fall Semester 2011

Blue Sheet Item #: 40-03-012

Review Date: 11/08/2011

UCA Revision #2: 7/27/07

BD

Creative Writing Minor

Contact: Charlotte Holmes, cxh18@psu.edu

Abington College, Penn State Altoona, Behrend College, Berks College, Capital College, University Park - Liberal Arts, University College (CWRIT_UMNR)

This minor offers students not majoring in English the opportunity to explore different forms of creative writing--fiction, poetry, and nonfiction--or to focus primarily on one of them. Students receive instruction and practice the art and craft of writing in small, workshop courses.

A grade of C or better is required for all courses in the minor.

Some courses may require prerequisites.

For a Minor in Creative Writing, a minimum of 18 credits is required.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

REQUIREMENTS FOR THE MINOR: 18 credits

ADDITIONAL COURSES (18 credits)

Select 6 credits of introductory-level courses (200-level): ENGL 212(3); ENGL 213(3); ENGL 214(3); ENGL 215(3); ENGL 281(3) (Sem: 1-4)

Select 12 credits of advanced -level writing workshop courses (400-level): ENGL 304 WAC(3-12); ENGL 412(3); ENGL 413(3); ENGL 414(3); ENGL 415(3); ENGL 422(3); ENGL 425(3); ENGL 401(3); ENGL 424(3); ENGL 429(3); ENGL 435(3); ENGL 436(3); ENGL 437(3); ENGL 439(3); ENGL 486 IL(3); ENGL 495(3-12) (Sem: 5-8)

Blue Sheet Item #: 45-05-041

Review Date: 2/21/17

Crime, Law, and Psychology

Penn State Erie (CLWPS_UMNR)

Contact: [Robert Speel, rws15@psu.edu](mailto:rws15@psu.edu); [Nicole Shoenberger, nas25@psu.edu](mailto:nicole.shoenberger@psu.edu)

The Crime, Law, and Psychology (CLP) minor is a multidisciplinary minor that offers a broad overview of the causes of crime, an understanding of the criminal justice system, and an awareness of how public policy influences criminal law. Classes will provide in-depth understanding of both sociological and psychological causes of criminal behavior, the psychological analysis of crime, the legal process, and policy-making. Students will have flexibility in choosing classes in three domains: Criminology, Psychology, and Political Science. This minor is designed for students with interest in learning about criminal behavior, the causes of criminal behavior, criminal investigation, and the legal system. PSYCH 100 is a pre-requisite for all other PSYCH courses. PL SC 001 and PL SC 014 are pre-requisites for some of the PL SC courses in the minor.

For the MINOR in Crime, Law, and Psychology a minimum of 18 credits is required.

A grade of C or better is required for all courses in the minor.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

REQUIREMENTS FOR THE MINOR: 18 credits

PRESCRIBED COURSES (3 credits)
SOC/CRIM/CRIMJ 012 GS(3) (Sem: 1-4)

ADDITIONAL COURSES (6 credits)
PSYCH 445(3); PSYCH 473(3); PSYCH 476(3), PL SC 471(3); PL SC 472(3); PL SC 482(3); PL SC 487(3) (Sem: 5-8)

SUPPORTING COURSES AND RELATED AREAS (9 credits)
Select 1 course from the Supported Courses of Criminal Justice, Criminology, and Sociology courses (3 credits) (Initial approved list)
SOC/CRIMJ 013 GS(3)
SOC/CRIMJ/CRIM 406 (3)

Select 1 course from the Supported Courses Psychology Courses (3 credits) (Initial approved list)
PSYCH 221 GS(3); PSYCH 232 GS;US;IL(3); PSYCH 238 GS(3); PSYCH 270(3); PSYCH 414(3); PSYCH 438(3); PSYCH 442(3); PSYCH 445(3); PSYCH 473(3); PSYCH 476(3)

Select 1 course from the Supported Courses of Political Science Courses (3 credits) (Initial approved list)
PL SC 002(3); PL SC 123 GS;US;IL(3); PL SC 177 GS(3); PL SC 419(3); PL SC 439(3); PL SC 482(3); PL SC 489(3); PL SC 178(3); PL SC 471(3); PL SC 472(3); PL SC 473(3); PL SC 487(3)

Last Revised by the Department: Fall Semester 2016

Blue Sheet Item #: 45-01-031

Review Date: 08/23/2016

English Minor

*Penn State Berks - Christian Weisser, crw17@psu.edu
Penn State Erie, The Behrend College (ELISH)*

Contact: Craig Warren, caw43@psu.edu

For the English minor at Penn State Erie, the student must take (beyond the basic General Education) 18 credits of courses in ENGL or ELISH; 6 of these credits must be at the 400 level. The student is encouraged to take courses from each of the areas within the major (The Canon and Its Critics, Globality and Literature, Cultural Studies), as well courses in creative writing. By doing so, students will develop skills in writing and critical thinking that will prove valuable in their later work experiences.

A grade of C or better is required for all courses in the minor.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

REQUIREMENTS FOR THE MINOR: 18 credits

SUPPORTING COURSES AND RELATED AREAS (18 credits)
Select at least 12 credits from ENGL or ELISH 200-289 [Students may not count courses used to satisfy General Education Writing/Speaking Skills] (Sem: 1-6)
Select at least 6 credits from ENGL or ELISH 400-493

Last Revised by the Department: Fall Semester 2001

Finance Minor

Penn State Abington - contact: Dr. Feng Zhang, fzz34@psu.edu

Penn State Erie, The Behrend College (FNC)- contact: Greg Filbeck, mgf11@psu.edu

A grade of C or better is required for all courses in the minor.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

REQUIREMENTS FOR THE MINOR: 18 credits

PRESCRIBED COURSES: (6 credits)

FIN 301(3) and FIN 420(3) (Sem: 5-6)

SUPPORTING COURSES AND RELATED AREAS: (12 credits)

Select 12 credits in consultation with an adviser from ACCTG 426 or 300- or 400-level FIN courses. (At least 6 credits must be at the 400 level.) (Sem: 7-8)

Last Revised by the Department: Fall Semester 2001

UCA Revision #2: 7/27/07

BD

Game Development Minor

Penn State Erie, The Behrend College (GAMBD)

Contact: Richard Zhao, richardzhao@psu.edu

Game Development is the craft of transforming a concept into an engaging interactive form. This craft is highly interdisciplinary, requiring students to answer questions about the human condition (what makes a game fun), about psychology (what makes an interface engaging), about aesthetics (what makes something pleasing), and about technical considerations (how to implement a game). Students pursuing the Game Development minor are required to explore a variety of disciplines in the breadth component. Often these classes will also be qualified as general education. Disciplinary depth in selected areas is achieved in the depth component. Finally, student teams complete a capstone design class, working in teams to complete a project from concept to implementation.

A grade of C or better is required for all courses in the minor.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

REQUIREMENTS FOR THE MINOR: 18 credits

PRESCRIBED COURSES: (9 credits)

GAME 220 GA(3) (Sem: 1-4)

GAME 250 GQ(3) (Sem: 2-4)

GAME 480(3) (Sem: 7-8)

ADDITIONAL COURSES: (9 credits)

Select 3 credits of 100 or 200-level GAME courses (excluding GAME 220 and 250); or
PSYCH 244(3) (Sem: 1-4)

Select 6 credits of 400-level GAME courses (excluding GAME 480) (Sem: 5-6)

Last Revised by the Department: Fall Semester 2017

Blue Sheet Item #: 46-01-018

Review Date: 8/22/2017

History Minor

Penn State Erie, The Behrend College (HSTRY)

Contact: Eric corty, ewc2@psu.edu

A grade of C or better is required for all courses in the minor.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

REQUIREMENTS FOR THE MINOR: 18 credits

SUPPORTING COURSES AND RELATED AREAS (18 credits)

Select 12 credits of HIST or HSTRY courses (Sem: 1-8)

Select 6 credits of 400-level HIST or HSTRY courses (Sem: 5-8)

Last Revised by the Department: Fall Semester 2001

BD

Management Information Systems Minor

Penn State Erie, The Behrend College (MISBD)

Contact(s): Ash Deshmukh, avd1@psu.edu

The Management Information Systems minor can open new career options for the student, increase the student's market value, and improve the student's chances for advancement.

A grade of C or better is required for all courses in the minor.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

REQUIREMENTS FOR THE MINOR: 18 credits

PRESCRIBED COURSES: (9 credits)

MIS 204(3) (Sem: 3-4)

MIS 336(3), MIS 430(3) (Sem: 5-7)

SUPPORTING COURSES AND RELATED: (9 credits)

Select 6 credits from CMPSC or MIS courses (Sem: 5-6)

Select 3 credits from 400-level CMPSC or MIS (Sem: 7-8)

Last Revised by the Department: Summer Session 2008

Blue Sheet Item #: 36-04-010

Review Date: 1/15/08

UCA Revision #1: 8/9/06

BD

Management Minor

*Penn State Abington - contact: Dr. Feng Zhang, fzz34@psu.edu
Penn State Erie, The Behrend College (MANGT)*

Contact(s): Balaji Rajagopalan, bur14@psu.edu

The management minor requires students to complete 6 additional credits in management beyond the 12 credits required in MGMT 301, MGMT 331, MGMT 341 and SCM 301. It is designed to introduce students to advanced topics in management, such as Human Resources management, as well to basics of organizations and interpersonal skills. This minor can provide an enhanced understanding of management challenges found in all organizations, regardless of the function or activities being undertaken. As a result, the management minor is uniquely qualified to work well as a supporting area with most other business majors.

A grade of C or better is required for all courses in the minor.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

REQUIREMENTS FOR THE MINOR: 18 credits

PRESCRIBED COURSES (12 credits)

MGMT 301(3), SCM 301(3) (Sem: 4-5)

MGMT 331(3), MGMT 341(3) (Sem: 6-8)

SUPPORTING COURSES AND RELATED AREAS (6 credits)

Select 6 credits of 400-level MGMT courses from the following list:

MGMT 409(3), MGMT 410(3), MGMT 420(3), MGMT 432(3), MGMT 440(3), or MGMT 461 IL(3) (Sem: 6-8)

Last Revised by the Department: Spring Semester 2012

Blue Sheet Item #: 40-06-045

Review Date: 04/10/2012

UCA Revision #1: 8/9/06

UCA Revision #2: 7/27/07

BD

Marketing Minor

Penn State Erie, The Behrend College (MRKTG)

Contact(s): Mary Beth Pinto, mxp49@psu.edu

A grade of C or better is required for all courses in the minor.

Scheduling recommendation by Semester Standing given like (Sem: 1-2)

For a Minor in Marketing a minimum of 18 credits are required.

REQUIREMENTS FOR THE MINOR: 18 credits

PRESCRIBED COURSES (6 credits)

MKTG 301(3), MKTG 342(3) (Sem: 5-6)

ADDITIONAL COURSES (3 credits)

MKTG 330(3); MKTG 344(3)

SUPPORTING COURSES AND RELATED AREAS (9 credits)

Select 9 credits of MKTG courses (at least 6 credits at the 400 level) (Sem: 5-8)

Last Revised by the Department: Spring Semester 2017

Blue Sheet Item #: 45-06-006

Review Date: 4/4/17

UCA Revision #2: 7/30/07

BD

Mathematics Minor

Penn State Erie, The Behrend College (MTHBD)

Contact(s): Michael Rutter, mar36@psu.edu

The minor in mathematics (MTHBD) shows students how to use mathematical tools and ways of thinking in many fields. The choice of several upper-level courses allows students to focus on specific areas of interest. Business majors might choose linear programming and operations research. Engineering students could enroll in numerical methods. Chemistry students might choose numerical methods and linear programming, while biology majors could enroll in mathematical modeling and differential equations. A solid mathematical background can be a strong asset in fields of education, neurobiology and behavior, plant biology and agriculture, immune system studies and pathology, medical sciences, marketing and management science, engineering, national security, ecology, and ecosystems.

A grade of C or better is required for all courses in the minor.

Scheduling recommendation by Semester Standing given like (Sem: 1-2)

REQUIREMENTS FOR THE MINOR: 18 credits

PRESCRIBED COURSES (4 credits)

MATH 311W(4) (Sem: 3-4)

SUPPORTING COURSES AND RELATED AREAS (14 credits)

Select 8 credits of MATH courses at the level of MATH 140 GQ(4) or above (Sem: 1-6)

Select 6 credits of 400-level MATH courses (Sem: 7-8)

(No more than three credits from MATH 495 courses can be used to satisfy this requirement.)

Last Revised by the Department: Fall Semester 2008

Blue Sheet Item #: 36-07-003

Review Date: 6/17/08

UCA Revision #1: 8/9/06

BD

Operations & Supply Chain Management Minor

Penn State Erie, The Behrend College (OPSCM)

Contact(s): Ray Venkataraman, rrv2@psu.edu

This minor is designed primarily for students enrolled in non-business majors, especially those in engineering and engineering technology, who wish to augment their majors with further studies in operations and supply chain management. The objective of the minor is to acquaint these students with the issues and methods associated with managing operations within manufacturing or service industries. Relevant studies include principles of management, operations management, logistics systems, procurement, planning and control, enterprise resource planning (ERP), and project management.

A grade of C or better is required for all courses in the minor.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

REQUIREMENTS FOR THE MINOR: 19 credits

PRESCRIBED COURSES: (6 credits)

MGMT 301(3), SCM 301(3) (Sem: 5)

ADDITIONAL COURSES: (13 credits)

SCM 200 GQ(4) or STAT 200 GQ(4) (Sem: 5)

Select 9 credits from the following list:

- SCM 465(3) (Sem: 6)

- SCM 455(3) or SCM 460(3) (Sem: 7)

- SCM 445(3), MGMT 409(3) (Sem: 8)

Last Reviewed by the Department: Summer Session 2011

Blue Sheet Item #:40-01-038

Review Date: 8/16/2011

BD

Politics and Government Minor

Penn State Erie, The Behrend College (POGO)

Contact(s): Rob Speel, rws15@psu.edu

The study of politics consists of several related subfields, such as American Government, public policy and administration, comparative politics or the study of foreign governments, international relations, and political theory. Students who pursue this minor are expected to develop research and writing skills, in addition to critical analytical skills. Because the policy making process and the processes of globalization affect us in virtually all areas of our lives, the minor is appropriate for supporting the study of any of the majors offered at the College. Similarly, the minor provides an invaluable understanding of the political world that is useful in any career that has an impact on or is affected by public life. Students who study politics at Behrend also often pursue graduate professional studies in law or in other fields in graduate schools.

A grade of C or better is required for all courses in the minor.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

REQUIREMENTS FOR THE MINOR: 18 credits

PRESCRIBED COURSES (6 credits)

PLSC 1 GS(3), PLSC 3 GS;IL(3) (Sem: 1-4)

SUPPORTING COURSES AND RELATED AREAS (12 credits)

Select 12 credits (at least 6 credits at the 400 level) from PL SC courses (Sem: 5-8)

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 42-01-024

Review Date: 08/20/13

BD

Project and Supply Chain Management

Penn State Erie, The Behrend College (PRSCM)

Contact: Ray Venkataraman (rrv2@psu.edu)

The Project and Supply Chain Management Minor is designed to introduce students within the School of Business to advanced topics in supply chain and project management. The minor can provide options and opportunities beyond those offered by a major program of study. Students enrolled in nonbusiness majors should explore the minor in Operations and Supply Chain Management whereas students in a business major can pursue the Project and Supply Chain Management Minor.

For a Minor in Project and Supply Chain Management a minimum of 18 credits are required.

Scheduling Recommendation by Semester Standing Given Like (Sem: 1-2)

Requirements for the Minor: 18 credits

PRESCRIBED COURSES (6 credits)

MGMT 301(3)[18], SCM 301(3)[18]

ADDITIONAL COURSES (12 credits)

Select 3 credits: MGMT 410(3)[18]; BA 421(3)[18]

Select 3 courses (9 credits) of 400-level MGMT and SCM courses from the following list. The choices must include at least one MGMT and one SCM course: MGMT 415(3); MGMT 418(3); SCM 445(3); SCM 455(3); SCM 460(3)

Last Revised by the Department: Spring 2016

Blue Sheet Item #: 44-06-030A

Review Date: 2/23/2016

Psychological Science Minor

*Penn State Erie, The Behrend College (PSYSC)
University College: Penn State Fayette*

*Contact: Penn State Erie - Victoria Kazmerski, vak1@psu.edu
Penn State Fayette - John Rapano, jvr3@psu.edu*

The Psychology minor is designed to provide undergraduate students with a broad overview of topics and domains within psychology, knowledge and skills related to research methods in psychology, and deeper knowledge of research, theory, and application in one or two specific content domains. Students completing this minor will find a flexible selection of coursework in psychology.

A grade of C or better is required for all courses in the minor.

Scheduling recommendation by Semester Standing given like (Sem: 1-2)

REQUIREMENTS FOR THE MINOR: 18 credits

PRESCRIBED COURSES (3 credits)

PSYCH 100 GS(3) (Sem: 1-4)

SUPPORTING COURSES AND RELATED AREAS (15 credits)

Select 15 credits (at least 6 credits at the 400-level) from PSYCH courses (Sem: 5-8)

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 42-01-025

Review Date: 08/20/13

UCA Revision #1: 8/14/06

BD

Sociology Minor (SOC)

Contact: Abington College, Michael Bernstein, mjb70@psu.edu; Altoona College, Karyn McKinney, kdm12@psu.edu; Behrend College, Nicole Shoenberger, nas25@psu.edu,

Capital College, Kenneth Cunningham, kuc1@psu.edu; Penn State Fayette, Russ Filburn, frf1@psu.edu; Penn State Schuylkill, Salih Hakan Can, shc11@psu.edu; College of the Liberal Arts, Sal Oropesa, rso1@psu.edu

The sociology minor allows students to explore the wide range of topics, social groups, and social interactions studied by sociologists. From social inequalities and social problems to the familiar institutions of family, school, religion, and government, the diversity of courses available allows sociology minors to explore courses relevant to their interests. The courses also provide multiple viewpoints, studying the intimate interactions of families and small groups and the complex interactions of global economies and political alliances. Requiring a minimum of 18 credits in sociology, including Introductory Sociology (SOC 1) and two courses at the 400 level, students have flexibility in choosing a set of courses for their sociology minor.

A grade of C or better is required for all courses in the minor.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

REQUIREMENTS FOR THE MINOR: 18 credits

PRESCRIBED COURSES (3 credits)

SOC 1 GS(3) (Sem: 1-6)

SUPPORTING COURSES AND RELATED AREAS (15 credits)

Select 15 credits in sociology; at least 6 of those credits must be at the 400 level (Sem: 1-8)

Last Revised by the Department: Fall Semester 2001

Editorial: 3/23/07

Spanish Minor (SPAN)

Contact: Altoona College, Roselyn Costantino, rx19@psu.edu; Behrend College, Soledad Traverso, sxt19@psu.edu; Berks College, Rosario Torres, rzt1@psu.edu; College of the Liberal Arts, Margaret (Peggy) Blue, mmb21@psu.edu

A grade of C or better is required for all courses in the minor. Courses that do not require knowledge of Spanish may not be counted toward the minor.

Scheduling recommendation by Semester Standing given like (Sem: 1-2)

REQUIREMENTS FOR THE MINOR: 18 credits

ADDITIONAL COURSES (9 credits)

Select 9 credits from:

SPAN 100(3); SPAN 100A*(3); SPAN 100B(3); SPAN 100C(3) (Sem: 2-6)

SPAN 200(3); SPAN 301*(3) (Sem: 2-6)

SPAN 215(3) or SPAN 253(3) (Sem: 3-6)

SUPPORTING COURSES AND RELATED AREAS (9 credits)

Select 3 credits from the following: SPAN 210(3), SPAN 220(3), SPAN 297(3), SPAN 299 IL(3), SPAN 300(3), SPAN 305(3), SPAN 314(3), SPAN 316(3), SPAN 353(3), SPAN 354(3), SPAN 355(3), SPAN 356(3), SPAN 397(3), SPAN 399 IL(3) (Sem: 2-8)

Select 6 credits from the following: SPAN 410(3), SPAN 412(3), SPAN 413(3), SPAN 418(3), SPAN 420(3), SPAN 439(3), SPAN 472(3), SPAN 476(3), SPAN 479(3), SPAN 488(3), SPAN

490(3), SPAN 497(3), SPAN 499 IL(1-12) (Sem: 5-8)

SPAN 199, 299, 399, and 499 (Study Abroad - Spanish) and SPAN 197, 297, 397, 497 (Special Topics Courses) may also be applied to the Spanish minor and will be substituted for the appropriate course by the Spanish minor advisor. All courses taken abroad must be taught in Spanish.

NOTE: SPAN 130, 131, 230, 231 and any course that does not require a knowledge of Spanish. DO NOT count toward the Spanish minor.

* Heritage speakers (students with Spanish language in family background) and native speakers of Spanish should take SPAN 100A and SPAN 301 instead of SPAN 100 and SPAN 200. May not take SPAN 410.

Last Revised by the Department: Spring Semester 2017

Blue Sheet Item #: 45-05-043

Review Date: 2/21/2017

LA

Statistics Minor

Penn State Erie, The Behrend College (STABD)

Contact(s): Michael Rutter, mar36@psu.edu

The minor in Statistics (STABD) provides students with a strong statistical background for careers in biology, actuarial science, engineering, mathematics; or for graduate studies in many fields. The minor is designed to make students proficient in the collection, interpretation and analysis of data.

A grade of C or better is required for all courses in the minor.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

REQUIREMENTS FOR THE MINOR: 28-30 credits

PRESCRIBED COURSES (20 credits)

MATH 140 GQ(4), MATH 141 GQ(4) (Sem: 1-2)

STAT 301 GQ(3), STAT 401(3), STAT 461(3), STAT 462(3) (Sem: 3-8)

ADDITIONAL COURSES (2-4 credits)

Select 2-4 credits from MATH 230(4) or MATH 231(2) (Sem: 3-4)

SUPPORTING COURSES AND RELATED AREAS (6 credits)

Select 6 credits of 400-level STAT or related MATH courses (Sem: 5-8)

(No more than three credits from 495 courses can be used to satisfy this requirement.)

Last Revised by the Department: Fall Semester 2008

Blue Sheet Item #: 36-07-004

Review Date: 6/17/08

UCA Revision #2: 7/30/07

BD

Technical Sales Minor

Penn State Erie, The Behrend College (TCHSL)

Contact(s): Diane Parente, dhp3@psu.edu

This minor is designed to accommodate undergraduates enrolled in engineering and engineering technology who wish to augment their majors with further studies in industrial or technical sales. This minor is designed for non-business majors. The objective of the minor is to acquaint the technical students of these majors with the issues and methods associated with industrial or technical sales. Relevant studies include principles of management, operations management, supply chain management, marketing, logistics systems, procurement, personal selling or business-to-business marketing, and project management. Students who complete the minor will be positioned for career opportunities as direct sales engineers who play a key role in selection, purchase, installation and maintenance of technical products by selling technology and engineering solutions, or as manufacturing representatives who independently form contracts in exclusive marketing territories for multiple small manufacturers of compatible but not competing technical products.

A grade of C or better is required for all courses in the minor.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

REQUIREMENTS FOR THE MINOR: 19 credits

Students are required to have a technically-oriented major (i.e. engineering, engineering technology, physical sciences, or other major as approved).

PRESCRIBED COURSES: (9 credits)

MGMT 301(3) (Sem: 5)

MKTG 301(3), SCM 301(3) (Sem: 6)

ADDITIONAL COURSES: (10 credits)

SCM 200 GQ(4) or STAT 200 GQ(4) (Sem: 5)

MKTG 410(3) or marketing elective as approved (Sem: 7-8)

Select 3 credits from the following list: MGMT 409(3), MGMT 410(3), SCM 455(3), SCM 460(3) (Sem: 7-8)

Last Reviewed by the Department: Summer Session 2011

Blue Sheet Item #:40-01-039

Review Date: 8/16/2011

UCA Revision #2: 7/30/07

BD

Transnational Perspectives Minor

Penn State Erie, The Behrend College (TNTLP)

Contact: Jessica Piney, jup33@psu.edu

This interdisciplinary minor is designed for students who wish to supplement their major field of study with international understanding and study. It introduces students to global concerns and multicultural issues and broadens students' understanding of the critical forces molding their nation and their lives in the twenty-first century. The Transnational Perspectives Minor is proposed for students planning international careers in their professional fields, careers in organizations engaged in international activity, and those with a general interest in global studies. The minor consists of 18 to 30 credits, at least 6 of which must be at the 400 level. Twelve credits or evidence of third-semester proficiency of a foreign language is required. The program of study is to be developed by the student in conjunction with an International Studies adviser. A grade of C or better is required for all courses in the minor.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

PRESCRIBED COURSES (18 credits)

INTST 100 GS;IL(3) (Sem: 1-4)

Select 12 credits of a foreign language or evidence of third-semester proficiency (Sem: 1-4)

INTST 400 IL(3) (Sem: 5-8)

SUPPORTING COURSES AND RELATED AREAS (12 credits)

Students may select 12 credits of internationally oriented courses in consultation with adviser. A list of recommended courses is maintained by Penn State-Behrend's Transnational Perspectives Committee. At least 3 credits must be at the 400 level (outside the student's major). Credits earned through approved academic study abroad may be counted in this category. (Sem: 1-8)

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 42-01-022

Review Date: 08/20/13

BD

Women's Studies Minor (WMNST)

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This interdisciplinary minor is designed to develop a broad understanding of the study of women and women's perspectives in all areas of academic scholarship. The primary focus is on feminist analyses of women's lives, women's social, cultural, and scientific contributions, and the structure of sex/gender systems. The interdisciplinary and inclusive nature of the field is reflected in a curriculum that includes courses cross-listed with a wide variety of departments, courses that deal with aspects of women's lives throughout history, and courses that recognize the diversities of culture, race, religion, ethnicity, age, disability, and sexual orientation. The Women's Studies minor emphasizes the development of critical and analytical skills, creative approaches to problem solving, and the ability to articulate productive alternatives.

Women's Studies minors have a definite career advantage, and can be successful in a wide variety of career paths. Some of these include legal advocacy, counseling, journalism, public relations, management, nonprofit administration, teaching, medicine, politics, or art. In addition, many alumnae/i are currently studying in professional, law, or graduate schools.

A grade of C or better is required for all courses in the minor.

Scheduling Recommendation by Semester Standing given like (Sem: 1-2)

REQUIREMENTS FOR THE MINOR: 18 credits

PRESCRIBED COURSES (3 credits)

WMNST 301 GH(3) (Sem: 1-4)

ADDITIONAL COURSES (3 credits)

WMNST 100 GS;US;IL(3) or WMNST 106 GS;US;IL (Sem: 1-4)

SUPPORTING COURSES AND RELATED AREAS (12 credits)

Select 12 credits in Women's Studies or from the program-approved list; at least 6 credits must be at the 400-level

--3 credits from each of the following categories: (Sem: 1-8)

- a. arts or humanities
- b. natural or social sciences
- c. focusing on non-Western women or on women of color in the United States

Last Revised by the Department: Spring Semester 2002

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Review Date: 6/29/05

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