



# University Bulletin

## Undergraduate Degree Programs

### Primary Navigation

## Penn State Berks

Penn State Berks College, in suburban Reading, offers high-quality, diverse programs. Students may choose from the two- and four-year programs offered at the college's locations or take the first two years of more than 160 Penn State academic programs that can be completed at other Penn State locations.

### 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.

### BERKS COLLEGE ADMINISTRATION

R. KEITH HILLKIRK, *Chancellor*

PAUL D. ESQUEDA, *Senior Associate Dean for Academic Affairs*

## Baccalaureate Degrees

### Accounting

*Penn State Abington (ACCAB)*

*Penn State Berks (ACCBL)*

*Capital College (ACCT)*

JANE KOCHANOV, *Director of Undergraduate Studies, School of Business Administration*

This major helps students prepare for careers in auditing and public accounting, industrial and managerial accounting, and in governmental and not-for-profit accounting. It also provides a sound background for students who plan to pursue graduate studies in accounting or related fields. Students who complete the prescribed courses and earn a Bachelor of Science degree will satisfy the academic requirements to sit for the Certified Public Accountant (CPA) examination. Graduates may also elect to pursue other professional certifications, including Certified Management Accountant (CMA), Certified Internal Auditor (CIA), Certified Fraud Examiner (CFE), and Certified Government Financial Manager (CGFM).

For a B.S. in Accounting a minimum of 120 credits is required. Consistent with Senate policy, at least 24 credits of course work in the major and the capstone course must be completed in the respective College to earn the degree. No more than 60 credits should be from business and business-related courses.

Students wishing to fulfill the 150 credit-hour education option to become a CPA in Pennsylvania (which reduces the experience requirement for certification) are encouraged to enter Capital College's Master of Professional Accounting program, or the Master of Business Administration program, or the Master of Science in Information Systems program subsequent to receiving their undergraduate accounting degree.

**Entry to Major Requirements:**

Entry to the Accounting major requires the completion of 8 entry-to-major courses: ACCTG 211(4)[1]; ECON 102 GS(3); ENGL 015 GWS(3)[1] or ENGL 030 GWS(3)[1]; FIN 301(3); MATH 110 GQ(4)[1] or MATH 140 GQ(4)[1]; MGMT 301(3); MKTG 301(3); SCM 200 GQ(4)[1] or STAT 200 GQ(4)[1]; and a 2.00 or higher cumulative grade-point average.

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

**GENERAL EDUCATION:** 45 credits

(12 of these 45 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education Course Requirements 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 credits of non-business courses

**REQUIREMENTS FOR THE MAJOR:** 79 credits

(This includes 12 credits of General Education Courses: 3 credits of GWS courses; 3 credits of GS courses; 6 credits of GQ courses)

**PRESCRIBED COURSES** (55 credits)

ACCTG 211(4)[1] (Sem: 1-4)

ECON 102 GS(3) (Sem: 1-4)

ENGL 202D GWS(3) (Sem: 1-4)

FIN 301(3), MKTG 301(3), MGMT 301(3) (Sem: 1-4)  
BA 364 US;IL(3), BA 462(3)[1], MIS 390(3), SCM 301(3) (Sem: 5-8)  
ECON 104 GS(3), MIS 204(3) (Sem: 5-8)  
ACCTG 310(3)[1], ACCTG 340(3)[1], ACCTG 403(3)[1], ACCTG 471(3)[1], ACCTG  
472(3)[1], ACCTG 473(3)[1] (Sem: 5-8)

**ADDITIONAL COURSES** (18 credits)

Select 4 credits from MATH 110 GQ(4)[1] or MATH 140 GQ(4)[1] (Sem: 1-4)  
Select 4 credits from SCM 200 GQ(4)[1] or STAT 200 GQ(4)[1] (Sem: 1-4)  
BA 243(4) or BA 241(2) and BA 242(2) (Sem: 5-6)  
Select 6 credits[1] from the following: ACCTG 410(3), ACCTG 431(3), ACCTG 432(3),  
ACCTG 440(3), ACCTG 461 IL(3), ACCTG 462(3), ACCTG 463(3), ACCTG 489(3), ACCTG  
494(1-12), ACCTG 496(1-18), ACCTG 497(1-9) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (6 credits)

Select 6 credits from 200-400 level business courses from: ACCTG, BA, ECON, FIN,  
MGMT, MIS, MKTG, or SCM in consultation with an academic adviser and in support of the  
student's interests. (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 Reviewed by the Department: Summer Session 2011

Blue Sheet Item #:40-01-044

Review Date: 8/16/2011

UCA Revision #1: 8/2/06

UCA Revision #2: 7/26/07

CL

## Applied Psychology

*Berks College (APSYC)*

This major is designed for students who are interested in a liberal arts degree with a concentration in applied psychology. The program features both active and collaborative classroom experiences in addition to intensive internship experiences, and is most appropriate for students who wish to develop a set of applied scientific and human relations skills that will prepare them for entry-level employment in a wide range of government and private human service organizations and agencies, and in business and industry. Because of the flexible and broad nature of the degree, students might also use this major as a preparation for graduate or professional school in business, human services, law, or the social sciences.

This program differs most notably from traditional majors in psychology in three ways: 1) it is intended for students who may not be planning to pursue a doctoral degree in psychology that would prepare them for a career as a psychologist; 2) it requires that students learn and apply skills during 12 credits of internship experiences; 3) it requires that students demonstrate skill proficiency in a comprehensive assessment in order to graduate.

For the B.A. degree in Applied Psychology, a minimum of 127 credits is required.

*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 or GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 8-24 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:** 50 credits<sup>[1]</sup>

(This includes 0-4 credits of General Education GQ courses.)

**PRESCRIBED COURSES** (28 credits)

PSYCH 100 GS(3) (Sem: 1-2)

PSYCH 212 GS(3), PSYCH 296(1) (Sem: 1-4)

PSYCH 301(4) (Sem: 3-6)

PSYCH 404/EDPSY 450(3), PSYCH 495(12) (Sem: 5-8)

PSYCH 496(2) (Sem: 7-8)

**ADDITIONAL COURSES** (16 credits)

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

Select 12 credits from the following groups, including a minimum of 3 credits from each category (a total of 9 credits must be at the 400 level):

1. Abnormal, Clinical, Personality:

PSYCH 238 GS(3) (Sem: 3-6)

PSYCH 470(3), PSYCH 479 US(3), PSYCH 481(3) (Sem: 5-8)

2. Developmental, Cognitive, Learning:

EDPSY 014(3), PSYCH 256 GS(3), PSYCH 261 GS(3), PSYCH 412(3), PSYCH 415(3),  
PSYCH 456(3) (Sem: 3-6)

PSYCH 416/HDFS 445(3) (Sem: 5-8)

3. Industrial/Organizational, Social, Interpersonal:

PSYCH 221 GS(3), PSYCH 281 GS(3), PSYCH 420(3) (Sem: 3-8)

PSYCH 423(3), PSYCH 424(3) (Sem: 5-8)

4. Health, Wellness, Adjustment:

PSYCH 243 GS(3) (Sem: 3-6)

PSYCH 441(3), PSYCH 471(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (6 credits)

Select 3 credits of 200-level psychology in consultation with an adviser (Sem: 1-2)

Select 3 credits in consultation with an adviser (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 2003

Blue Sheet Item #: 31-04-017

Review Date: 1/14/03

UCA Revision #1: 8/14/06

BK-LV

## Biochemistry and Molecular Biology

*Penn State Berks (BMBBL)*

*University Park, Eberly College of Science (B M B)*

Director of Curricular Affairs, Meredith Defelice, *in charge*

Students in this major apply basic principles of chemistry and physics to the study of living cells and their components to explain biology at molecular, genetic, and cellular levels. Students will develop a strong foundation in quantitative and analytical biological sciences, including molecular biology, biochemistry, enzymology, metabolism, cell biology, and molecular genetics. The Biochemistry Option is offered for students who have interests in the structures, properties and functions of macromolecules, and in the quantitative and analytical techniques used to characterize these macromolecules. The Molecular and Cell Biology Option is available to students whose interests relate to the growth, reproduction and differentiation of cells and to signaling processes that occur in multicellular systems that activate and modulate these processes. The curriculum is designed to prepare students for advanced study leading to careers in research, medicine, and education, or to secure employment in biotechnology and health-related industries, including government, academic, and private laboratories.

In order to be eligible for entrance to the Biochemistry and Molecular Biology major, a student must have: 1) attained at least a 2.00 cumulative grade-point average, and 2) completed CHEM 110 GN(3), CHEM 111 GN(1), CHEM 112 GN(3), and MATH 140 GQ(4); and 3) earned a grade of C or better in each of these courses.

For the B.S. degree in Biochemistry and Molecular Biology, a minimum of 125 credits is required.

*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 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:** 95 credits [\[86\]](#)

(This includes 15 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses.)

(To graduate, a grade of C or better is required in 9 credits of any BMB or MICRB

400-level course except BMB 408, BMB 442, BMB 443W, BMB 445W, BMB 446, BMB 448, BMB 488, BMB 496, MICRB 408, MICRB 421, MICRB 422, MICRB 447.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS): 55 credits**

**PRESCRIBED COURSES** (53 credits)

CHEM 110 GN(3)[1], CHEM 111 GN(1)[1], CHEM 112 GN(3)[1], CHEM 113 GN(1), MATH 140 GQ(4)[1], MATH 141 GQ(4), MICRB 201(3)[85], MICRB 202(2), PSU 016(1) (Sem: 1-2) BMB 251(3)[85], BMB 252(3)[85], BMB 442(3), BIOL 322(3), CHEM 210(3), CHEM 212(3), CHEM 213(2), (Sem: 3-4)  
BMB 400(2), BMB 401(3), BMB 402(3), BMB 443(3) (Sem: 5-6)

**ADDITIONAL COURSES** (2 credits)

Select 2 credits from: BMB 445(2) or BMB 448(2) (Sem: 7-8)

**REQUIREMENTS FOR THE OPTION: 40 credits**

**BIOCHEMISTRY OPTION: (40 credits)**

**PRESCRIBED COURSES:** (21 credits)

PHYS 211 GN(4), PHYS 212 GN(4), PHYS 213 GN(2), PHYS 214 GN(2) (Sem: 2-4)  
CHEM 450(3), CHEM 452(3) (Sem: 5-8)  
BMB 474(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS:** (19 credits)

Select 7-9 credits from any 400-level BMB/CHEM/MICRB course or from department list D (additional 400-level courses) with a maximum of 3 credits in BMB 408 and/or MICRB 408 and a maximum of 4 credits in BMB 488 and/or BMB 496 (Sem: 5-8)

Select 2-3 credits in the mathematical sciences from department list B (Sem 5-8)

Select 7-10 credits from department list C (Sem: 5-8)

**MOLECULAR AND CELL BIOLOGY OPTION: (40 credits)**

**PRESCRIBED COURSES:** (9 credits)

BMB 430(3), BMB 460(3) (Sem: 5-8)  
MICRB 410(3) (Sem: 5-8)

**ADDITIONAL COURSES:** (11-14 credits)

Select 8 credits from: PHYS 211 GN(4), PHYS 212 GN(4), PHYS 250 GN(4), PHYS 251 GN(4) (Sem: 1-4)

Select 3-6 credits from: CHEM 450(3), CHEM 452(3); or BMB 428(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS:** (17-20 credits)

Select 5-6 credits from any 400-level BMB/MICRB course or from department list D (additional 400-level courses) with a total maximum of 3 credits in BMB 408 and/or MICRB 408 and a maximum of 4 credits in BMB 488 and/or BMB 496 (Sem:5-8)

Select 2-3 credits in the mathematical sciences from department list B (Sem: 5-8)

Select 4-13 credits from department list C (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.

**[85]** To graduate, a grade of C or better is required in two of the following courses: MICRB 201, BMB/MICRB 251, BMB/MICRB 252.

**[86]** To graduate, a grade of C or better is required in 9 credits of any BMB or MICRB 400-level course except BMB 442, BMB 443W, BMB 445W, BMB 446, BMB 448, BMB 488, BMB 496, MICRB 421W, MICRB 422, MICRB 447.

Last Revised by the Department: Fall Semester 2016

Blue Sheet Item #: 45-01-131

Review Date: 08/23/16

UCA Revision #1: 8/2/06

SC

# Biology

*Abington College (BIOAB)*

*Altoona College (BIOAL)*

*Berks College (BIOBL)*

*Capital College (BIOCA)*

*University Park, Eberly College of Science (BIOL)*

*University College, Penn State Beaver, Penn State Brandywine, Penn State Schuylkill, Penn State Worthington Scranton, Penn State York (BIOCC)*

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

*Carla Hass, Person-In-Charge*

The curriculum in Biology is planned for preparation for professions requiring competence in biological science or for gaining an understanding of the world of living things. The professional group includes students who intend to secure advanced degrees through graduate study, students who are interested in work with various governmental agencies or industries having biological responsibilities, and students who want to prepare for careers in medicine or other health-related professions. Students whose interests are not professional select the curriculum because its broad approach can result in an educated view of the structure and function of living things. Achievement of these goals, including a special interest in a particular area of biology, can be met by selecting one of five options offered by the Department of Biology that will lead to the B.S. degree in Biology. The options and their key areas are 1) Plant Biology--morphology, systematics, and physiology of plants and fungi; 2) Ecology--behavior, and population and community biology of plants and animals; 3) General Biology--all aspects of modern biology; 4) Genetics and Developmental Biology--genetics, genetic engineering, and plant and animal development; 5) Neuroscience--development, biochemistry, physiology and aging of the central and peripheral nervous system; 6) Vertebrate Physiology--pre-medicine, pre-dentistry, pharmacology, and animal physiology.

In order to be eligible 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), CHEM 110 GN(3), MATH 140 GQ(4), and earned a grade of C or better in each of these courses; and 3) completed at least one of the following courses with a grade of C or better: BIOL 220W GN(4), BIOL 230W GN(4), or BIOL 240W GN(4).

## **TO VIEW THE Biology Minor (BIOL)**

For the B.S. degree in Biology, a minimum of 124 credits is required.

*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 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: 94 credits**

(This includes 15 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses.)

**COMMON REQUIREMENTS FOR MAJOR (ALL OPTIONS): 40-44 credits**

**PRESCRIBED COURSES (32 credits)**

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

BIOL 110 GN(4)[1], BIOL 220W GN(4)[1], BIOL 230W GN(4)[1], BIOL 240W GN(4)[1] (Sem: 1-4)

**ADDITIONAL COURSES (8-12 credits)**

PHYS 250 GN(4), PHYS 251 GN(4); or PHYS 211 GN(4), PHYS 212 GN(4), PHYS 213 GN(2), PHYS 214 GN(2) (Sem: 5-6)

**REQUIREMENTS FOR THE OPTION: 50-54 credits**

**ECOLOGY OPTION: (50-54 credits)**

**ADDITIONAL COURSES (30-33 credits)**

CHEM 202(3), CHEM 203(3); or CHEM 210(3), CHEM 212(3), CHEM 213(2) (Sem: 3-4)

Select 3-4 credits from STAT 200 GQ(4) or STAT 240 GQ(3) or STAT 250 GQ(3) (Sem: 3-4)

Select 3 credits from STAT 462(3) or STAT 464(3) (Sem: 7-8)

Select a minimum of 18 credits of 400-level biology courses, with at least 3 credits from each of the following groups (courses in Group IV--except BIOL 496, SC 295, SC 395, SC 495--may be used to satisfy requirements in other groups) (Sem: 5-8)

Group I: BIOL 412(3), BIOL 419(3), BIOL 435(3), BIOL 436(3), BIOL 444(3), BIOL 450W(3-5), BIOL 463(3), BIOL 482(3-4), BIOL 499A IL(3)

Group II: BIOL 414(3), BIOL 427(3), BIOL 428(3), BIOL 429(3), BIOL 448(3), BIOL 464(3), BIOL 474(3)

Group III: BIOL 406(3), BIOL 415(3), BIOL 417(4), BIOL 446(3), PPEM 425(4)

Group IV: BIOL 414(3), BIOL 417(4), BIOL 419(3), BIOL 444(3), BIOL 448(3), BIOL 450W(3-5), BIOL 482(3-4), BIOL 496(3), BIOL 499A IL(3), PPEM 425(4), SC 295(1-3), SC 395(1-3), SC 495(1-3) (A maximum of 3 credits of BIOL 496 or 4 credits of SC 295, SC 395, SC 495 may be used to fulfill the 18-credit minimum in the 400-level biology course requirement.)

**SUPPORTING COURSES AND RELATED AREAS (17-24 credits)**

Select 17-24 credits from department list (Sem: 1-8)

**GENERAL BIOLOGY OPTION: (50-54 credits)**

**ADDITIONAL COURSES (24-27 credits)**

CHEM 202(3), CHEM 203(3); or CHEM 210(3), CHEM 212(3), CHEM 213(2) (Sem: 3-4)



Select 3-4 credits from STAT 200 GQ(4), STAT 240 GQ(3), or STAT 250 GQ(3) (Sem: 3-4)

Select a minimum of 18 credits of 400-level biology courses, with at least 3 credits from each of the following groups (each course may be used to satisfy a requirement in only one group) (Sem: 5-8)

Group I -- BIOL 407(3), BIOL 410(3), BIOL 414(3), BIOL 441(3), BIOL 443(3), BIOL 444(3), BIOL 446(3), BIOL 448(3), BIOL 499A IL(3), HORT 407(3), HORT 440W(3), PPEM 416(2-4), PPATH 425(4)

Group II -- BIOL 405(3), BIOL 411(3), BIOL 414(3), BIOL 417(4), BIOL 420(3), BIOL 421(4), BIOL 425(4), BIOL 427(3), BIOL 428(3), BIOL 438(3), BIOL 443(3), BIOL 460(3), BIOL 474(3)

Group III -- AN SC 442(3), B M B 400(2-3), B M B 450(2), BIOL 404(3), BIOL 405(3), BIOL 407(3), BIOL 410(3), BIOL 411(3), BIOL 416(3), BIOL 422(3), BIOL 426(3), BIOL 428(3), BIOL 430(3), BIOL 432(3), BIOL 439(3), BIOL 443(3), BIOL 448(3), BIOL 460(3), BIOL 499A IL(3), HORT 407(3)

Group IV -- BIOL 406(3), BIOL 412(3), BIOL 414(3), BIOL 415(3), BIOL 417(4), BIOL 419(3), BIOL 428(3), BIOL 429(3), BIOL 435(3), BIOL 436(3), BIOL 444(3), BIOL 446(3), BIOL 448(3), BIOL 450W(3-5), BIOL 463(3), BIOL 464(3), BIOL 474(3), BIOL 499A IL(3),

Group V -- BIOL 404(3), BIOL 406(3), BIOL 409(3), BIOL 411(3), BIOL 413(3), BIOL 416(3), BIOL 421(4), BIOL 426(3), BIOL 430(3), BIOL 432(3), BIOL 437(4), BIOL 443(3), BIOL 446(3), BIOL 460(3), BIOL 469(3), BIOL 470(3), BIOL 472(3), BIOL 479(3)

Group VI -- BIOL 400(1-3), BIOL 407(3), BIOL 414(3), BIOL 417(4), BIOL 419(3), BIOL 421(4), BIOL 437(4), BIOL 439(3), BIOL 444(3), BIOL 448(3), BIOL 450W(3-5), BIOL 461(3), BIOL 471(3), BIOL 473(2), BIOL 496(1-3), PPEM 425(4), SC 295(1-3), SC 395(1-3), SC 495(1-3)

### **SUPPORTING COURSES AND RELATED AREAS (23-30 credits)**

Select 23-30 credits from department list (Sem: 1-8)

### **GENETICS AND DEVELOPMENTAL BIOLOGY OPTION: (50-54 credits)**

#### **PRESCRIBED COURSES (19 credits)**

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

BIOL 322(3), BIOL 430(3) (Sem: 5-6)

B M B 401(2), B M B 402(3) (Sem: 5-8)

#### **ADDITIONAL COURSES (17-21 credits)**

Select 2-5 credits from MATH 220 GQ(2-3), MATH 231(2), MICRB 201(3), MICRB 202(2) (Sem: 3-6)

Select 3-4 credits from STAT 200 GQ(4), STAT 240 GQ(3), STAT 250 GQ(3), or STAT 319(3) (Sem: 5-6)

Select a minimum of 12 credits of 400-level courses, with at least 6 credits from Group I, 3 credits from Group II, and 3 credits from Group III (Sem: 5-8)

Group I -- B M B 400(2-3), B M B 450(2), BIOL 404(3), BIOL 405(3), BIOL 407(3), BIOL 410(3), BIOL 411(3), BIOL 413(3), BIOL 416(3), BIOL 422(3), BIOL 426(3), BIOL 427(3), BIOL 428(3), BIOL 432(3), BIOL 437(4), BIOL 439(3), BIOL 443(3), BIOL 448(3), BIOL 460(3), BIOL 469(3), HORT 407(3), MICRB 410(3)

Group II -- BIOL 405(3), BIOL 411(3), BIOL 414(3), BIOL 417(4), BIOL 420(3), BIOL 421(4), BIOL 425(4), BIOL 427(3), BIOL 428(3), BIOL 438(3), BIOL 443(3), BIOL 460(3), BIOL 474(3)

Group III -- BIOL 400(1-3), BIOL 407(3), BIOL 437(4), BIOL 439(3), BIOL 448(3), BIOL

461(3), BIOL 471(3), BIOL 473(2), BIOL 496(1-3), BIOL 499A IL(3), B M B 442(3), PPEM 425(4), SC 295(1-3), SC 395(1-3), SC 495(1-3)

**SUPPORTING COURSES AND RELATED AREAS** (10-18 credits)

Select 10-18 credits from department list (Sem: 1-8)

**NEUROSCIENCE OPTION:** (50-54 credits)

**PRESCRIBED COURSES** (19 credits)

B M B 401(2), B M B 402(3) (Sem: 5-8)  
BIOL 469(3), BIOL 470(3) (Sem: 5-8)  
CHEM 210(3), CHEM 212(3), CHEM 213(2) (Sem: 3-4)

**ADDITIONAL COURSES** (15-16 credits)

Select 3-4 credits from STAT 200 GQ(4), STAT 240 GQ(3), or STAT 250 GQ(3) (Sem: 3-4)

Select a minimum of 12 credits of 400-level biology courses, with at least 6 credits from Group I, 3 credits from Group II, and 3 credits from Group III (Sem: 5-8)

Group I -- B M B 400(2-3), BIOL 404(3), BIOL 409(3), BIOL 411(3), BIOL 413(3), BIOL 421(4), BIOL 426(3), BIOL 430(3), BIOL 437(4), BIOL 443(3), BIOL 460(3), BIOL 471(3), BIOL 472(3), BIOL 473(2), BIOL 479(3) (may select up to 6 credits from department list)

Group II -- BIOL 405(3), BIOL 411(3), BIOL 414(3), BIOL 417(4), BIOL 420(3), BIOL 421(4), BIOL 425(4), BIOL 427(3), BIOL 428(3), BIOL 438(3), BIOL 443(3), BIOL 460(3), BIOL 474(3)

Group III -- BIOL 400(1-3), BIOL 414(3), BIOL 417(4), BIOL 419(3), BIOL 421(4), BIOL 437(4), BIOL 439(3), BIOL 444(3), BIOL 448(3), BIOL 450W(3-5), BIOL 461(3), BIOL 471(3), BIOL 473(2), BIOL 496(1-3), BIOL 499A IL(3), SC 295(1-3), SC 395(1-3), SC 495(1-3)

**SUPPORTING COURSES AND RELATED AREAS** (15-20 credits)

Select 15-20 credits from department list (Sem: 1-8)

**PLANT BIOLOGY OPTION:** (50-54 credits)

**PRESCRIBED COURSES** (22 credits)

CHEM 210(3), CHEM 212(3), CHEM 213(2) (Sem: 3-4)  
B M B 401(2), B M B 402(3), BIOL 407(3), BIOL 414(3), BIOL 441(3) (Sem: 5-8)

**ADDITIONAL COURSES** (12-13 credits)

Select 3-4 credits from STAT 200 GQ(4), STAT 240 GQ(3), STAT 250 GQ(3), or an advanced statistics course (Sem: 3-4)

Select a minimum of 9 credits of 400-level biology courses, with at least 6 credits from Group I and 3 credits from Group II (Sem: 5-8)

Group I -- BIOL 410(3), BIOL 413(3), BIOL 427(3), BIOL 430(3), BIOL 443(3), BIOL 444(3), BIOL 446(3), BIOL 448(3), BIOL 499A IL(3), BIOTC 459(3), HORT 407(3), HORT 440W(3), PPEM 416(2-4), PPEM 425(4)

Group II -- BIOL 400(1-3), BIOL 414(3), BIOL 419(3), BIOL 439(3), BIOL 444(3), BIOL 448(3), BIOL 450W(3-5), BIOL 461(3), BIOL 496(1-3), BIOL 499A IL(3), SC 295(1-3), SC 395(1-3), SC 495(1-3)

**SUPPORTING COURSES AND RELATED AREAS** (15-20 credits)

Select 15-20 credits from department list (Sem: 1-8)

**VERTEBRATE PHYSIOLOGY OPTION:** (50-54 credits)

**PRESCRIBED COURSES** (18 credits)

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

B M B 401(2), B M B 402(3), BIOL 472(3), BIOL 473(2) (Sem: 5-8)

**ADDITIONAL COURSES** (15-16 credits)

Select 3-4 credits from STAT 200 GQ(4), STAT 240 GQ(3), or STAT 250 GQ(3) (Sem: 5-8)

Select a minimum of 12 credits of 400-level courses, with at least 6 credits from Group I, 3 credits from Group II, and 3 credits from Group III (Sem: 5-8)

Group I -- BIOL 404(3), BIOL 406(3), BIOL 409(3), BIOL 411(3), BIOL 412(3), BIOL 413(3), BIOL 416(3), BIOL 421(4), BIOL 426(3), BIOL 430(3), BIOL 432(3), BIOL 437(4), BIOL 443(3), BIOL 446(3), BIOL 460(3), BIOL 469(3), BIOL 470(3), BIOL 471(3), BIOL 479(3) (may select up to 6 credits from department list)

Group II -- BIOL 405(3), BIOL 411(3), BIOL 414(3), BIOL 417(4), BIOL 420(3), BIOL 421(4), BIOL 425(4), BIOL 427(3), BIOL 428(3), BIOL 438(3), BIOL 443(3), BIOL 460(3), BIOL 474(3)

Group III -- BIOL 400(1-3), BIOL 414(3), BIOL 417(4), BIOL 419(3), BIOL 421(4), BIOL 437(4), BIOL 439(3), BIOL 444(3), BIOL 448(3), BIOL 450W(3-5), BIOL 461(3), BIOL 471(3), BIOL 473(2), BIOL 496(2), BIOL 499A IL(3), SC 295(1-3), SC 395(1-3), SC 495(1-3)

**SUPPORTING COURSES AND RELATED AREAS** (16-21 credits)

Select 16-21 credits from department list (Sem: 1-8)

## **Integrated B.S. in Biology/M.Ed. in Curriculum and Instruction**

This Integrated Undergraduate/Graduate (IUG) degree program combines the Bachelor of Science in Biology with the Master of Education in Curriculum and Instruction, Science Education emphasis. The program is designed to be completed in five years. The program enables highly qualified and motivated students to delve deeply into a scientific content area and to pursue graduate level preparation in the theory and practice of teaching. Most students in this option intend to seek Pennsylvania teacher certification, and a semester of student teaching comprises part of their final year of studies. The IUG may also be suitable for a student who does not need to become certified, because they intend to teach in a private secondary school or a non-formal educational setting; in such cases, the second graduate semester will be a program of studies determined through consultation with the graduate advisor and customized for the student's specific needs.

For specific instructions on applying to the program, please consult the "Application Process" section of the IUG description for the Biology B.S. degree in the *Undergraduate Bulletin*. Application materials to be submitted include an undergraduate transcript, statement of purpose, draft plan of study, two letters of recommendation, and concurrent submission of an application for master's study to the graduate program in Curriculum and Instruction, Science Education emphasis area. Additional details about the graduate application procedure can be found above in the section, "Admissions Requirements."

IUG students fulfill all degree requirements for a B.S. in the Eberly College of Science. If a student chooses to leave the program without completing M.Ed. requirements, he or she may still receive the relevant B.S. degree, after all B.S. requirements are completed.

For the M.Ed. degree, students must earn at least 30 credits at the 400/500 level, at least 18 of them at the 500 level. One graduate semester is usually devoted to full time student teaching. Additional graduate coursework is completed in a second semester. Courses required for the M.Ed. degree include a course in learning theory (e.g., SCIED 552(3)), a course in research methods (e.g., SCIED 558(3)), a course in curriculum (e.g., SCIED 550), and a course in research ethics (C I 590(1)).

Students pursuing teacher certification (the usual option) additionally complete a 500-level EDTHP course (3), C I 595(6), and C I 496(6). SCIED 558(3), C I 496(6), and C I 595(6) comprise the student-teaching semester course load. Students who are not pursuing teacher certification substitute 15 credits of other 400 or 500-level coursework for the student-teaching semester; those courses are selected in consultation with their advisors, in order to address the students' specific career aspirations.

124 credits are required for the B.S. degree and 30 credits for the M.Ed. degree. The following courses may be double-counted toward both the B.S. and the M.Ed. degrees, up to a limit of 12 credits: EDTHP 500-level courses (3), SCIED 411(3) & SCIED 412(3), and SCIED 500-level courses. Note that at least 50% of credits proposed for double-counting must be at the 500 level.

There are a number of other requirements for Pennsylvania teacher certification, including state-required tests and clearances, as well as coursework that can be completed at either the undergraduate or graduate level. Some courses, not enumerated above, that are usually required to satisfy teacher certification requirements include C I 280(3), SPLED 400(3), and C I 495C(3). Please note that changes in Pennsylvania certification requirements are common; students should check the Certification FAQ page at the Penn State Science Education website for updates and clarification about the specific requirements that affect them, based on their admission date to the IUG program option. Note also that students in the IUG program option are not required to complete all Penn State teacher certification requirements in order to receive their B.S. and M.Ed. degrees, as long as they have completed the requirements for those degrees, as described in the undergraduate and graduate *Bulletins*. For example, a student who has completed all degree requirements but has not yet received a score for the Pennsylvania-required Biology PRAXIS exam may be awarded both of his or her earned degrees.

**[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 #: 45-01-132

Review Date: 8/23/16

UCA Revision #1: 8/2/06

UCA Revision #2: 7/26/07

SC

## **Business**

*Abington College (BSBAB)*

*Altoona College (BSBAL)*

*Berks College (BSBBL)*

*University College (BSBCC): Penn State Beaver, Penn State Brandywine, Penn State DuBois, Penn State Fayette, Penn State Greater Allegheny, Penn State Hazleton, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Schuylkill, Penn State Shenango, Penn State Wilkes-Barre, Penn State Worthington Scranton, Penn State York University College (BSBIC) via the World Campus*

The Bachelor of Science in Business (B.S.B.) is a professionally oriented business degree program that combines the theoretical underpinnings of core business disciplines, notably management, marketing, finance, and supply chain management, with applied

study in a practical setting. Through the choice of an 18-credit option, students specialize in a key business sector. Students also develop written and oral communication skills throughout the program, acquire contemporary technology skills, and engage in active and collaborative learning. The degree allows students to become familiar with the unique business environments of their local communities, a design that sets the degree apart from other business degrees offered within the University and throughout the Commonwealth.

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

**ACCOUNTING OPTION:** This option prepares students to pursue careers in business with an emphasis on the areas of financial and managerial accounting, systems and controls, auditing, and taxation.

**ENTREPRENEURSHIP OPTION:** This option prepares students to pursue entrepreneurial careers with emphasis on idea generation, opportunity analysis, new product creation, and business plan development.

**FINANCIAL SERVICES OPTION:** This option prepares students to pursue careers in financial organizations with emphasis on wealth management, tax planning, risk management, and financial analysis.

**HEALTH SERVICES OPTION:** This option prepares students to pursue careers in the health services sector with emphasis on the financial and administrative aspects of health care enterprises.

**INDIVIDUALIZED BUSINESS OPTION:** This option provides the opportunity for students to pursue an approved business-focused interdisciplinary program of study.

**MANAGEMENT AND MARKETING OPTION:** This option prepares students to pursue careers in business organizations with an emphasis on the skills and knowledge necessary for the business professional to function in community and regional centers of commerce.

**Entrance Requirement:** Completion of MATH 022 or MATH 040, 041, 110, 140.

For the B.S. degree in Business, a minimum of 120 credits is required, 15 of which must be at the 400 level.

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

**GENERAL EDUCATION:** 45 credits  
(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 ELECTIVES or GENERAL EDUCATION course selection)

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

**ELECTIVES:** 10 credits

**REQUIREMENTS FOR THE MAJOR:** 77 credits  
(This includes 12 credits of General Education courses: 6 credits of GQ courses; 6 credits of GS courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS): 59 credits**

**PRESCRIBED COURSES (41 credits)**

ECON 102 GS(3) (Sem: 1-4)

ACCTG 211(4), ECON 104 GS(3), MIS 204(3) (Sem: 3-4)

BA 321(3)[1], BA 322(3)[1], BA 420(1)[1], FIN 301(3)[1], MGMT 301(3)[1], MKTG 301(3)[1], SCM 301(3)[1] (Sem: 5-6)

IB 303 IL(3)[1] (Sem: 5-8)

BA 421(3)[1], BA 422(3)[1] (Sem: 7-8)

**ADDITIONAL COURSES (15-18 credits)**

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

SCM 200 GQ(4) or STAT 200 GQ(4) (Sem: 1-4)

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

Select 3 or 6 credits from BA 495A(3 or 6)[1], BA 495B(3 or 6)[1] (Sem: 7-8)

**SUPPORTING COURSES AND RELATED AREAS (0-3 credits)**

Select 0-3 credits from 400-level business courses from: ACCTG, BA, ECON, ENTR, FIN, FINSV, HPA, IB, MGMT, MIS, MKTG, RM, or SCM [1] (Sem: 7-8)

**REQUIREMENTS FOR THE OPTION: 18 credits [1]**

**ACCOUNTING OPTION: (18 credits)**

**PRESCRIBED COURSES (9 credits)**

ACCTG 404(3), ACCTG 471(3), ACCTG 472(3) (Sem: 5-6)

**ADDITIONAL COURSES (6 credits)**

ACCTG 403(3) or 403W(3) (Sem: 7-8)

ACCTG 405(3) or FINSV 411(3) (Sem: 7-8)

**SUPPORTING COURSES AND RELATED AREAS (3 credits)**

Select 3 credits of 400-level courses from: ACCTG, BA, ECON, ENTR, FIN, FINSV, HPA, IB, MGMT, MIS, MKTG, RM, or SCM (Sem: 7-8)

**ENTREPRENEURSHIP OPTION: (18 credits)**

**PRESCRIBED COURSES (9 credits)**

ENTR 300(3), ENTR 320(3) (Sem: 5-6)

ENTR 400(3) (Sem: 7-8)

**ADDITIONAL COURSES (0-3 credits)**

Select 0-3 credits in CAS 352(3) or ENGL 419(3) (Sem: 7-8)

**SUPPORTING COURSES AND RELATED AREAS (6-9 credits)**

Select 6 to 9 credits of 400-level ENTR courses in consultation with your advisor (Sem: 5-8)

**FINANCIAL SERVICES OPTION: (18 credits)**

**PRESCRIBED COURSES (3 credits)**

FIN 420(3) (Sem: 5-8)

**ADDITIONAL COURSES (3 credits)**

Select 3 credits from ACCTG 405 or FINSV 411 (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS (12 credits)**

Select 12 credits in 300 or 400-level (with at least 3 credits at the 400-level) from ACCTG, FIN, FINSV or RM (Sem: 5-8)

**HEALTH SERVICES OPTION:** (18 credits)  
(Minimum 6 credits at the 400-level)

**PRESCRIBED COURSES** (6 credits)  
HPA 101(3) (Sem: 5-6)  
HPA 332(3) (Sem: 5-8)

**ADDITIONAL COURSES** (0-3 credits)  
Select 0-3 credits from BBH 302(3), CAS 352(3), CAS 404(3), ENGL 416(3), ENGL 419(3), LER 424(3), LER 472(3), PSYCH 281 GS(3), PSYCH 484(3), or PSYCH 485(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (9-12 credits)  
Select 3-9 credits from 300 or 400-level HPA courses (Sem: 5-8)  
Select 0-6 credits of 300-400-level courses from ACCTG, BA, ECON, ENTR, FIN, FINSV, HPA, IB, MGMT, MKTG, MIS, RM or SCM (Sem: 6-8)

**INDIVIDUALIZED BUSINESS OPTION:** (18 credits)  
Select 18 credits of study (with at least 3 credits at the 400-level) as submitted by the student and approved by the campus BSB Program Coordinator (Sem: 5-8)

**MANAGEMENT AND MARKETING OPTION:** (18 credits)

**ADDITIONAL COURSES** (0-6 credits)  
Select 0-6 credits from the following: BA 250(3), ENGL 419(3), MKTG 220(3) or one of the following, CAS 250(3), CAS 252(3), CAS 352(3), CAS 404(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (12-18 credits)  
A minimum of 3 credits of supporting courses must be selected at the 400-level.  
Select 3 credits from 300 or 400-level MGMT courses (Sem: 5-8)  
Select 3 credits from 300 or 400-level MKTG courses (Sem: 5-8)  
Select 6-12 additional credits in 300 or 400-level courses from MGMT or MKTG courses (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 2013

Blue Sheet Item #: 42-04-065

Review Date: 01/14/2014

UCA Revision #1: 8/3/06

### Comments

## Communication Arts and Sciences

*Berks College (CASBL)  
University College (CASCC): Penn State Brandywine, Penn State York  
University Park, College of the Liberal Arts (CAS)*

*Contacts: Berks College, Catherine Catanach, [cdc18@psu.edu](mailto:cdc18@psu.edu); Penn State Brandywine, Wayne McMullen, [wjm11@psu.edu](mailto:wjm11@psu.edu); Penn State York, Deborah Eicher-Catt, [dle4@psu.edu](mailto:dle4@psu.edu); College of the Liberal Arts, Dr. Rachel A. Smith, [ras57@psu.edu](mailto:ras57@psu.edu)*

This major provides increased understanding and practice in the ways humans use symbols to influence people and the world around them. The ability to communicate effectively with others in personal, social, work and multicultural situations is essential in modern society. A student of Communication Arts and Sciences will learn to think critically, analyze and solve problems, understand and manage conflict, argue persuasively, influence people, form and keep relationships, give effective presentations, and participate in the civic and political life of a community. The flexibility of the program offers preparation for a variety of careers such as administration, law, business, health, and human services fields. A CAS degree also lends itself well to a concurrent degree program in which students prepare themselves in several fields of study.

For the B.A. degree in Communication Arts and Sciences, a minimum of 124 credits is required.

Per Senate Policy 83-80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. For more information, check the Recommended Academic Plan for your intended program.

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

**GENERAL EDUCATION:** 45 credits

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

**WRITING ACROSS THE CURRICULUM:**

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

**ELECTIVES:** 25 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 front of *Bulletin*.)

**REQUIREMENTS FOR THE MAJOR:** 30 credits **[1]**

**PRESCRIBED COURSES** (9 credits)

CAS 201 GH(3), CAS 202 GS(3), CAS 204(3) (Sem: 3-6)

**ADDITIONAL COURSES** (6 credits)

Select 3 credits of skills courses from CAS 203 GS(3), CAS 205(3), CAS 211(3), CAS 213(3), CAS 214(3), CAS 215(3), CAS 216(2), CAS 250(3), CAS 252(3), CAS 271 US;IL(3), CAS 280(3), or CAS 283(3) (Sem: 3-8)

Select 3 credits of 300-level courses from CAS 302(2), CAS 311(3), CAS 321(3), CAS 352(3), CAS 373(3), CAS 375(3), CAS 383(3), CAS 398(1-9), CAS 399 IL(1-12) (Sem: 3-8)

**SUPPORTING COURSES AND RELATED AREAS** (15 credits)

Select 15 credits of other CAS courses; at least 12 credits must be at the 400 level. A maximum of 6 credits from CAS 494, 495, 496, and 499(IL) may satisfy this requirement.



CAS 126(3) and CAS 195(1) may not be counted as part of 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: Spring Semester 2010

Blue Sheet Item #: 38-06-118

Review Date: 04/13/2010

LA

## **Criminal Justice**

*Abington College (CJAAB)*

*Altoona College (CJBA)*

*Penn State Berks (CJABL)*

PROFESSOR Peter M. Hopsicker, Division Head, Division of Education, Human Development, and Social Sciences

Students receiving a baccalaureate degree in criminal justice should understand each of the three main components of the criminal justice system and their interrelationships, be able to evaluate critically both current and future crime control policy proposals and criminal justice research, and understand the complexity of the crime phenomenon and its relationship to individual, social, and cultural factors. This major includes study in law enforcement, courts and corrections individually and as components of a system, plus work in theories of crime causation, and crime control policy. Students should expect reading, writing, and critical thinking skills to be rigorously applied and developed throughout the degree program. The Bachelor of Arts degree in Criminal Justice provides a broadly based liberal arts background for the study of crime, justice and the criminal justice system. The Bachelor of Science degree offers an opportunity for educational enrichment in fields not traditionally considered part of the liberal arts. Either degree is excellent preparation for a career in criminal justice, graduate, or professional study, or informed citizenship.

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

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

**GENERAL EDUCATION:** 45 credits

(10-13 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:** 12-15 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: 49 credits****[1]**

(This includes 10-13 credits of General Education courses; 0-3 credits of GH courses; 4 credits of GQ courses; 6 credits of GS courses.)

**PRESCRIBED COURSES (34 credits)**

CRIMJ 100(3), SOC 012 GS(3), SOC 119 GS;US(4), STAT 200 GQ(4) (Sem: 1-4)

CRIMJ 210(3), CRIMJ 220(3), CRIMJ 230(3), CRIMJ 290(2)(Sem: 3-6)

CRIMJ 441(3), CRIMJ 450W(3), CRIMJ 495(3) (Sem: 5-8)

**ADDITIONAL COURSES (15 credits)**

PHIL 103 GH(3) or CRIMJ 465(3) (Sem: 1-4)

CRIMJ 250W(3) or SOC 207(3)

Select 9 credits from any 400-level CRIMJ course that does not already fulfill another requirement in the major. (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 #: 45-01-016

Review Date: 8/23/16

UCA Revision #1: 8/3/06

UCA Revision #2: 7/27/07

AL

## Criminal Justice

*Abington College (CJSAB)*

*Altoona College (CJBS)*

*Penn State Berks (CJSBL)*

*PROFESSOR Peter M. Hopsicker, Division Head, Division of Education, Human Development, and Social Sciences*

Students receiving a baccalaureate degree in criminal justice should understand each of the three main components of the criminal justice system and their interrelationships, be able to evaluate critically both current and future crime control policy proposals and criminal justice research, and understand the complexity of the crime phenomenon and its relationship to individual, social, and cultural factors. This major includes study in law enforcement, courts and corrections individually and as components of a system, plus work in theories of crime causation, and crime control policy. Students should expect reading, writing, and critical thinking skills to be rigorously applied and developed throughout the degree program. The Bachelor of Arts degree in Criminal Justice provides a broadly based liberal arts background for the study of crime, justice and the criminal justice system. The Bachelor of Science degree offers an opportunity for educational enrichment in fields not traditionally considered part of the liberal arts. Either degree is

excellent preparation for a career in criminal justice, graduate, or professional study, or informed citizenship.

For the B.S. degree in Criminal Justice, a minimum of 120 credits is required.

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

**GENERAL EDUCATION:** 45 credits

(10-13 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:** 27-30 credits

**REQUIREMENTS FOR THE MAJOR:** 57 credits<sup>[1]</sup>

(This includes 10-13 credits of General Education courses: 0-3 credits of GH courses; 4 credits of GQ courses; 6 credits of GS courses.)

**PRESCRIBED COURSES** (33 credits)

CRIMJ 100(3), SOC 012 GS(3), SOC 119 GS;US(4), STAT 200 GQ(4) (Sem: 1-4)

CRIMJ 210(3), CRIMJ 220(3), CRIMJ 230(3), CRIMJ 290(1)(Sem: 3-6)

CRIMJ 441(3), CRIMJ 450W(3), CRIMJ 495(3) (Sem: 5-8)45

**ADDITIONAL COURSES** (15 credits)

PHIL 103 GH(3) or CRIMJ 465(3) (Sem: 1-4)

CRIMJ 250W(3) or SOC 207(3)

Select 9 credits from any 400-level CRIMJ course that does not already fulfill another requirement in the major. (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)

Select 12 credits, in consultation with the adviser, in one or two of the following skill enhancement areas: accounting, computers, composition and rhetoric, counseling, education, law and legal studies, foreign language, management, public speaking, research methods and statistics, science and engineering, biobehavioral health; or in the following topics: adolescence, deviant behavior, drugs, minorities (Sem: 3-6)

**[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 #: 45-01-017

Review Date: 8/23/16

UCA Revision #1: 8/3/06

UCA Revision #2: 7/27/07

AL

# Electro-Mechanical Engineering Technology

*Altoona College*

*Berks College*

*University College: Penn State New Kensington, Penn State York (EMET)*

PROFESSOR SVEN BILÉN, Head, School of Engineering Design, Technology, and Professional Programs, College of Engineering, University Park

PROFESSOR IVAN E. ESPARRAGOZA, Director of Engineering Technology and Commonwealth Engineering, Penn State Brandywine

PROFESSOR JENNILYN VALLEJERA, Program Coordinator, Penn State Altoona

PROFESSOR TERRY SPEICHER, Program Coordinator, Penn State Berks

PROFESSOR KARL HARRIS, Program Coordinator, Penn State New Kensington

PROFESSOR CHARLES GASTON, Program Coordinator, Penn State York

The Electro-Mechanical Engineering Technology (B.S. EMET) degree program provides the basic undergraduate education required for a career as an electro-mechanical engineering technologist. The program emphasizes a breadth of knowledge in all fields of engineering technology related to typical, highly-automated manufacturing, production, or assembly plant processes. Basic coverage is provided in all major areas to technology involved in the operation and control of manufacturing and production processes, including instrumentation and monitoring methods, principles of machine design, automated control techniques, thermal and fluid sciences, computerized manufacturing systems, principles of electrical and electronic circuit operation, computer-aided drafting and design, economics of production, and statistical analysis and quality control.

The primary aim of the EMET program is to provide graduates with the knowledge and skills necessary to apply current methods and technology to the development, design, operation, and management of electro-mechanical systems, particularly in those industries where automated systems are prevalent.

## **Program Educational Objectives:**

Specific educational objectives of the program expect that graduates of the program, within five years of graduation will be:

1. Capable of and actively involved in the specification, procurement, or integration of electromechanical systems
2. Capable of and actively involved in the operation, testing, or maintenance of electromechanical systems
3. Capable of and actively participating in project team activities
4. Capable of and actively involved in the preparation and delivery of technical documentation and communication

## **Program Outcomes (Student Outcomes):**

At graduation, EMET students should have:

- a) An ability to select and apply the knowledge, techniques, skills, and modern tools of their disciplines to broadly-defined engineering technology activities,
- b) An ability to select and apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require the application of principles and applied procedures or methodologies,
- c) An ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments; and to apply experimental results to improve processes,
- d) An ability to design systems, components, or processes for broadly-defined

- engineering technology problems appropriate to program educational objectives,
- e) An ability to function effectively as a member or leader on a technical team,
  - f) An ability to identify, analyze, and solve broadly-defined engineering technology problems,
  - g) An ability to communicate effectively regarding broadly-defined engineering technology activities,
  - h) An understanding of the need for and an ability to engage in self-directed continuing professional development,
  - i) An understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity,
  - j) A knowledge of the impact of engineering technology solutions in a societal and global context, and
  - k) A commitment to quality, timeliness, and continuous improvement.

In addition, EMET graduates must demonstrate the knowledge and technical competency to:

- a) Use computer-aided drafting or design tools to prepare graphical representations of electromechanical systems.
- b) Use circuit analysis, analog and digital electronics, basic instrumentation, and computers to aid in the characterization, analysis, and troubleshooting of electromechanical systems.
- c) Use statics, dynamics (or applied mechanics), strength of materials, engineering materials, engineering standards and manufacturing processes to aid in the characterization, analysis, and troubleshooting of electromechanical systems.
- d) Use appropriate computer programming languages for operating electromechanical systems.
- e) Use electrical/electronic devices such as amplifiers, motors, relays, power systems, and computer and instrumentation systems for applied design, operation, or troubleshooting electromechanical systems.
- f) Use advanced topics in engineering mechanics, engineering materials, and fluid mechanics for applied design, operation, or troubleshooting of electromechanical systems.
- g) Use basic knowledge of control systems for the applied design, operation, or troubleshooting of electromechanical systems.
- h) Use differential and integral calculus, as a minimum, to characterize the static and dynamic performance of electromechanical systems.
- i) Use appropriate management techniques in the investigation, analysis, and design of electromechanical systems.

The major is organized as a four-year baccalaureate program with the corresponding Penn State admission requirements. Graduates of an associate degree in either electrical or mechanical engineering technology from Penn State may re-enroll in the EMET program. The College of Engineering ENGR students may enroll through "Change of Major" procedures. Students from an engineering technology program at another institution or community college accredited by TAC of ABET may transfer into the program with advanced standing.

For the B.S. degree in Electro-Mechanical Engineering Technology, a minimum of 130 credits is required. This program is accredited at Penn State Altoona, Penn State Berks, Penn State New Kensington, and Penn State York of the University College by the Engineering Technology Accreditation Commission of ABET, [www.abet.org](http://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 front of Bulletin.)

**FIRST-YEAR EXPERIENCE:**

(Satisfied by the FYE program at the campus at which the student is enrolled in the EMET program)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in GENERAL EDUCATION course selection)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 6 credits

**REQUIREMENTS FOR THE MAJOR:** 109-114 credits

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

**PRESCRIBED COURSES (73 credits)**

MCHT 111(3)[1] (Sem: 1-2)

CMPET 117(3)[1], CMPET 120(1)[1], CMPET 211(3), EDSGN 100(3), EET 105(3), EET 114(4)[1], EET 118(1)[1], EET 212(4)[1], EET 275(3), EGT 114(2), EMET 100(1), EMET 215(3), EMET 222(3)[1], EMET 225(2), EMET 230(3)[1], EMET 325(3), EMET 326(3), EMET 330(3)[1], EMET 350(3) EMET 403(1) (Sem: 5-6)

EMET 405(3), EMET 410(4), EMET 440(3), ENGL 202C GWS(3), IET 101(3), IET 333(2) (Sem: 7-8)

**ADDITIONAL COURSES (27-31 credits)**

Select 5-6 credits from MATH 40 GQ(5)[1]; or [MATH 22 GQ(3)[1] and MATH 26 GQ(3)[1]; or [MATH 81 GQ(3)[1] and MATH 82 GQ(3)[1] \* (Sem: 1-2)

Select 3 credits of GH or GS from: ENGR 320Y GS;US;IL;WAC(3), STS 200 GS(3), STS 233 GH(3), or STS 245 GS;IL(3) (Sem: 2-8)

Select 10-11 credits from:

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

MATH 83 GQ(4)[1]\*\* or MATH 140 GQ(4)[1] (Sem: 3-4)

MATH 210 GQ(3) or MATH 141 GQ(4) (Sem: 3-4)

Select 3 credits from MATH 211 GQ(3)[1] or MATH 250(3)\*\*\* (Sem: 4-5)

Select 6-8 credits of GN courses from two of the following groups:

CHEM 110 GN(3) and CHEM 111 GN(1) (Sem: 4-6)

PHYS 150 GN(3) or PHYS 211 GN(4) or PHYS 250 GN(4) (Sem: 4-6)

PHYS 151 GN(3) or PHYS 212 GN(4) or PHYS 251 GN(4) (Sem: 4-6)

**SUPPORTING COURSES AND RELATED AREAS (9-10 credits)**

Select 3-4 credits of science courses, in consultation with an adviser, from the approved department list (Sem: 4-6)

Select 6 credits of General Technical Elective courses, in consultation with an adviser, from the approved department 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.

\*students taking MATH 81 GQ(3) and MATH 82 GQ(3) must take MATH 83 GQ(4)

\*\*students taking MATH 83(4) must take MATH 210(3) and MATH 211(3)

\*\*\*Note that MATH 250 does not carry a C-requirement

Last Revised by the Department: Fall Semester 2017

Blue Sheet Item #: 46-01-040

Review Date: 8/22/2017

UCA Revision #1: 8/3/06 UCA Revision #2: 7/27/07

Comments

EN

# 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), SCI ED 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

**PROGRAM CURRENTLY ON HOLD;  
NOT ACCEPTING NEW STUDENTS  
Begin Date of Enrollment Hold: September 10, 2010**

**\*\*Please Note: Individuals interested in earning Pennsylvania teaching credentials for grades PK-8 should refer to the Childhood and Early Adolescent Education major.**

## **Elementary and Kindergarten Education**

*Altoona College (EEDAL): Elementary Education Teaching Option*

*Berks College (EEDBL)*

*University Park, College of Education (EK ED)*

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

PROFESSOR STEPHANIE SERRIERE, *in charge*

This major offers teaching options in Early Childhood Education and in Elementary Education. Students successfully completing this major will have met all of the requirements for the N-3 or K-6 College Instructional I certificate issued by the Pennsylvania Department of Education. Students must indicate their choice of teaching option at the time they make application for admission to a teacher education major. Students who are undecided at this time about which teaching option to select should contact their adviser and enroll in a field experience featuring participation in the classroom.

**EARLY CHILDHOOD TEACHING OPTION:** Students successfully completing this option will have met all of the requirements for the N-3 Instructional I certificate issued by the Pennsylvania Department of Education. Special courses in both human development and education are used to integrate understanding of preschool programs with relevant theories of child development.

**ELEMENTARY EDUCATION TEACHING OPTION:** Students successfully completing this option will have met all of the requirements for the K-6 Instructional I certificate issued by the Pennsylvania Department of Education.

For the B.S. degree in Elementary and Kindergarten Education, a minimum of 129.5 credits is required for the Early Childhood Teaching Option and a minimum of 122 credits is required for the Elementary Education Teaching Option. (See also **Teacher Education Programs**.)

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

**GENERAL EDUCATION:** 45 credits

(27-30 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:** 0-3 credits

**REQUIREMENTS FOR THE MAJOR:** 101-117 credits

(This includes 27-30 credits of General Education courses: 6 credits of GS, 6 credits of GQ, 6 credits of GH, and 9 credits of GN courses for both options. The Early Childhood Teaching option permits 3 credits of GHA.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 84.5-85.5 credits<sup>[1]</sup>

**PRESCRIBED COURSES** (57.5 credits)

C I 295(2), EDPSY 014(3), ENGL 100(3), MATH 200 GQ(3) (Sem: 1-4)

A ED 303(3), C I 495B(3), C I 495D(12), C I 495F(3), KINES 126(1.5), LL ED 400(3), LL ED 401(3), LL ED 402(3), MTHED 420(3), MUSIC 241(3), SCI ED 458(3), SPLED 400(3), SS ED 430W(3) (Sem: 5-8)

**ADDITIONAL COURSES** (15-16 credits)

EDTHP 115 US(3) or EDTHP 115A GS;US(3) (Sem: 1-3)

HIST 020 GH;US(3) or HIST 021 GH;US(3) (Sem: 1-4)

STAT 100 GQ(3), STAT 200 GQ(4) or EDPSY 101 GQ(3) (Sem: 1-4)

ECON 102 GS(3), ECON 104 GS(3) or ECON 014 GS(3) (Sem: 1-8)

GEOG 020 GS;US;IL(3), GEOG 030 GS;IL(3), GEOG 126 GS;US;IL(3), GEOG 122 GH;US(3),

GEOG 123 GS;IL(3), GEOG 120 GS;US;IL(3), GEOG 124 GS;IL(3), or GEOG 128 GS;IL(3) (Sem: 1-8)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)

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

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

**REQUIREMENTS FOR THE OPTION:** 16.5-30 credits

**EARLY CHILDHOOD TEACHING OPTION:** (27-30 credits)<sup>[1]</sup>

**PRESCRIBED COURSES** (15 credits)

E C E 451(3), E C E 452(3), E C E 453(2), E C E 454(3), E C E 479(3), C I 495A(1) (Sem: 5-8)

**ADDITIONAL COURSES** (12-15 credits)

H P A 101(3) or NUTR 251 GHA(3) (Sem: 1-2)

HD FS 315 US(3) or SOC 030 GS(3) (Sem: 1-4)

HD FS 229 GS(3) or PSYCH 100 GS(3) and PSYCH 212 GS(3) (Sem: 1-4)

HD FS 428(3) or HD FS 429(3) (Sem: 5-8)

**ELEMENTARY EDUCATION TEACHING OPTION:** (16.5-19.5 credits)<sup>[1]</sup>

**PRESCRIBED COURSES** (1.5 credit)

KINES 127(1.5) (Sem: 5-8)

**ADDITIONAL COURSES** (3-6 credits)

HD FS 229 GS(3) or EDPSY 010 GS(3) or PSYCH 100 GS(3) and PSYCH 212 GS(3) (Sem: 1-4)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)

Select 3 credits in MATH or MTHED (Sem: 1-8)

Select 6 credits from EDTHP at the 400 level, ECE at the 400 level, SPLED at the 400 level, EDLDR 405(3), EDLDR 497(1-9), LL ED 497(1-9) (Sem: 5-8)

Select 3 credits in U.S. History (Sem:1-8)

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

Last Revised by the Department: Summer Session 2005

Blue Sheet Item #: 33-06-097

Review Date: 2/12/08

UCA Revision #1: 8/3/06

ED

## Global Studies

*Berks College (GLBST)*PROFESSOR KIRWIN SHAFFER, *Program Coordinator*

This major is designed for students who are interested in a liberal arts degree with a concentration in global studies. Featuring both active and collaborative classroom experiences in addition to intensive study abroad/internship experiences, the program is designed for students who wish to develop a set of analytical and interpersonal skills that will prepare them for entry-level employment in a wide range of government and non-profit organizations and agencies and in businesses and industry. Because of the flexible and broad nature of the degree, students might also use this major as preparation for graduate or professional school in business, law, or the social sciences. This program differs most notably from traditional majors in international/global studies by requiring core courses in world literature and intercultural communication, while retaining the traditional foreign language, history, and political science emphasis of most other programs. Study abroad and an internship with an international organization are also important features of this degree.

For the B.A. degree in Global Studies, a minimum of 123 credits is required.

*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 GENERAL EDUCATION)

**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in GENERAL EDUCATION course selection)

**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:** 39 credits<sup>[1]</sup>

Including 24 credits at the 400 level (9-15 credits of which are included in the prescribed courses, the other 9-15 must be chosen from the option tracks below). A minimum of 3 credits of study abroad (meeting any requirement) and 3 credits of INTST 495 are required for the completion of this degree. Courses meeting major requirements may be taken abroad; however, typically courses taken abroad will qualify to meet a student's optino, internship, and/or language requirements.

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 18-24 credits

**PRESCRIBED COURSES** (18-24 credits)

PLSC 14 GS;IL(3) (Sem: 1-4)

HIST 320W(3) (Sem: 1-6)

CAS 271 US;IL(3) (Sem:3-4)

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

INTST 495 (3-9), PLSC 440(3) (Sem: 7-8)

**REQUIREMENTS FOR THE OPTION:** 15-21 credits

**LATIN AMERICAN CULTURE OPTION:** (15-21 credits)

**ADDITIONAL COURSES** (15-21 credits)

Select 15-21 credits from the following list of courses:

CAS 471 US;IL(3), CEDEV 430(3), CMLIT 153 GH;IL(3), ECON 333 GS(3), HIST 179 GH;IL(3), HIST 432 IL(3), HIST 467 US;IL(3), HIST 468 IL(3), IB 303(3), INTAG 100 GS;IL(3), SPAN 100(3)<sup>[83]</sup>, SPAN 131 GH;IL(3) or SPAN 131Y GH;US;IL(3), SPAN 200(3)<sup>[83]</sup>, SPAN 220(3)<sup>[83]</sup>, SPAN 253(3)<sup>[83]</sup>, SPAN 300(3)<sup>[83]</sup>, SPAN 420(3)<sup>[83]</sup>, SPAN 476(3)<sup>[83]</sup>, SPAN 497(1-9)<sup>[83]</sup> (Sem: 1-8)

**CONTEMPORARY HISTORY AND POLITICS OPTION:** (15-21 credits)

**ADDITIONAL COURSES** (15-21 credits)

Select 15-21 credits from the following list of courses:

CAS 471 US;IL(3), CEDEV 430(3), CMLIT 153 GH;IL(3), ECON 333 GS(3), ENGL 182A GH;US;IL(3), FR 139 GH;IL(3), GER 100 GH;IL(3), HIST 120 GS;IL(3), HIST 175 GH;IL(3), HIST 179 GH;IL(3), HIST 181 GH;IL(3), HIST 192 GH;IL(3), HIST 435(3), HIST 467 US;IL(3), HIST 468 IL(3), HIST 488(3), IB 303(3), INTAG 100 GS;IL(3), PLSC 412(3), PLSC 413(3), PLSC 424(3), PLSC 443(3), PLSC 454 IL(3), PLSC 487(3), RUS 100 GH;IL(3), SPAN 131 GH;IL(3), UKR 100 GH;IL(3) (Sem: 1-8)

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

**[83]** These courses also constitute the projected Spanish minor.

Last Revised by the Department: Fall Semester 2011

Blue Sheet Item #: 40-04-020

Review Date: 01/10/2012

## Hospitality Management

*University Park, College of Health and Human Development (HM)  
Penn State Berks (HMBL) - Effective Fall Semester 2015*

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

PROFESSOR Donna Quadri-Felitti, *Director and Associate Professor, School of Hospitality Management*

This major helps provide preparation for management positions in hotels, restaurants, institutions, and other hospitality organizations. The program is designed to give the student a broad general education and a strong management and problem-solving orientation balanced with the requisite technical skills, all of them essential for career progression to upper-management positions in the hospitality professions. The program also helps prepare students for graduate study.

**HOSPITALITY MANAGEMENT OPTION:** This option helps prepare students for management positions in any segment of the hospitality industry, including hotels, restaurants, institutional or non-commercial operations, clubs, resorts, and casinos. The management focus helps provide students with the analytical, interpersonal, and organizational skills necessary to effectively function as hospitality professionals.

**HOSPITALITY ENTREPRENEURSHIP OPTION:** (offered only at Penn State Berks ) This option helps prepare students for careers as owners or managers of small independently-owned hospitality operations or as entrepreneurs within large hospitality corporations or management companies in hospitality segments such as a restaurants, hotels, and non-commercial operations. The entrepreneurship focus helps provide students with creative problem solving, opportunity recognition, and leadership skills necessary to effectively manage small or individual unit's hospitality operations.

For the B.S. degree in Hospitality Management, a minimum of 120.5 credits is required. The B.S. degree program consists of two options: (1) Hospitality Management and Hospitality Entrepreneurship.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. SHM requires students to complete 24 credits for the major through courses taken at University Park. Courses taken at other Penn State campuses may not be counted toward this 24 credit minimum. For more information, check the Recommended Academic Plan for this major.

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

**GENERAL EDUCATION:** 45 credits  
(9-10.5 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:** 11-12.5 credit

**REQUIREMENTS FOR THE MAJOR:** 86-87.5 credits[1]

(For the HM option, this includes 10.5 credits of General Education courses: 6 credits of GQ courses; 3 credits of GS courses; 1.5 credit of GHA courses. For the Hospitality Entrepreneurship option, this includes 9 credits of General Education courses: 3 credits of GS courses and 6 credits of GQ courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 65 credits

**PRESCRIBED COURSES** (62 credits)

ACCTG 211(4), ECON 102 GS(3), STAT 200 GQ(4) (Sem: 1-4)  
HM 201(3), HM 202(1), HM 203(1), HM 228(1), HM 271(3), HM 290W(3), HM 329(3), HM 330(2), HM 335(3), HM 336(3), HM 350 GQ(3), HM 365 IL(3), HM 380(3), HM 430(3), HM 435(3), HM 442(3), HM 466 US(3), HM 490(3), HM 492(1), NUTR 119(3)(Sem: 5-8)

**ADDITIONAL COURSES** (3 credits)

BA 303(3) or MKTG 221(3) (Sem: 1-4)

**REQUIREMENTS FOR THE OPTION:** 21-22.5 credits

**HOSPITALITY MANAGEMENT OPTION:** (22.5 credits)

**PRESCRIBED COURSES** (7.5 credits)

HM 355(3), HM 480(3), NUTR 100 GHA(1.5) (Sem: 5-6)

**SUPPORTING COURSES AND RELATED AREAS:** (15 credits)

Select 15 credits of HM courses from an approved department list, up to 4 credits of any foreign language, and other courses in consultation with an advisor.

**HOSPITALITY ENTREPRENEURSHIP OPTION:** (21-22 credits)

**PRESCRIBED COURSES** (12 credits)

HM 305(3), HM 319(3), HM 484(3), MGMT 215(3) (Sem: 5-6)

**ADDITIONAL COURSES** (9-10 credits)

Select 9-10 credits from the following: BA 243(4), BA 250(3), ENGR 310(3), MGMT 425(3), MGMT 427(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 #: 45-01-067

Review Date: 8/23/2016

UCA Revision #1: 8/8/06

HH

School director updated: 4/16/13

# Information Sciences and Technology

*Abington College (ISSAB)*

*Berks College (ISSBL)*

*Capital College (ISSCA)*

*University College: Penn State Beaver, Penn State Brandywine, Penn State Greater Allegheny, Penn State Hazleton, Penn State New Kensington, Penn State Lehigh Valley, Penn State Mont Alto, Penn State Schuylkill, Penn State Wilkes-Barre, Penn State Worthington Scranton, Penn State York (ISSCC)*

*World Campus*

*University Park, College of Information Sciences and Technology (ISTBS)*

*Mary Beth Rosson, Associate Dean for Graduate and Undergraduate Studies, College of IST*

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

This major is structured to provide students with the theoretical frameworks and skill sets necessary to compete and be productive in the information technology-intensive global context that defines the new "Information Age." Specifically, the degree will be focused on a program that will build an understanding of core information technologies and related areas of study; will prepare students for the practical application of various information sciences and related technologies; and engage students in sharpening their abilities to think critically and to work in teams. All this will be done with considerable interdisciplinary integration in order to expose students to the cognitive, social, institutional, and global environments of IST. Team projects in most courses, a required internship, and a senior capstone experience provide additional, focused venues for involving students in the cutting-edge issues and technologies of the field.

**INFORMATION CONTEXT: PEOPLE, ORGANIZATIONS, AND SOCIETY OPTION:** This option focuses on how information technology affects social change and the delivery of information to the consumer. This includes the human-machine interface; organization and retrieval of information; digital libraries; information and telecommunications services; information and media industry structures; software services and intermediaries; telecommunications and information law and policy; sociological aspects of technology change; multimedia; and art, design, and aesthetics.

**INFORMATION SYSTEMS: DESIGN & DEVELOPMENT OPTION:** This option is focused on expanding the skills needed to develop advanced information technology systems using state-of-the-art tools and techniques. The emphasis is on providing the student with both knowledge in the design, implementation, testing and evolution of complex software systems as well as a set of project-oriented, team-programming experiences.

**INFORMATION TECHNOLOGY: INTEGRATION & APPLICATION OPTION:** This option is designed to prepare students to use information technology to realize a variety of system-based goals (e.g., reliability, accessibility, efficiency, etc.). It is focused on developing a theoretical foundation and the skill set needed for integrating information technology into different systems for the purpose of enhancing system performance. The emphasis is on providing the student with both the theoretical frameworks needed to use information technology as a system attribute as well as a set of application-oriented experiences and skills.

**Entrance Requirements:** To be eligible for entrance to the Information Sciences and Technology (ISTBS) major, students must:

1. have completed the following entrance-to-major requirements with a grade of C or better in each: IST 110(3); IST 140(3) (or equivalent CMPSC 101 GQ(3) or CMPSC 121 GQ(3)), IST 210(3), and IST 220(3).
2. have achieved a minimum cumulative grade point average of 2.00 prior to and through the end of the semester during which the entrance-to-major procedure is carried out.

The Integrated Undergraduate Graduate (IUG) program is available for strong undergraduate students who wish to pursue a bachelor's and master's degree in a shorter period of time than would be necessary if the degrees were pursued separately. Information Sciences and Technology undergraduates may apply for admission to the ISTBS/ISTMS IUG program as early as the end of their sophomore year but no later than the end of their junior year after completing a minimum of 60 credits, if they meet the following admission requirements:

1. Must be enrolled in the ISTBS undergraduate degree program.
2. Must have completed 60 credits of an ISTBS undergraduate degree program.
3. Must apply to the IUG program by the end of their junior year.
4. Must apply to and be accepted without reservation into the Graduate School and M.S. program in IST. Students must complete the **Graduate School application**.
5. Must have an overall GPA of 3.5 (on a 4.0 scale) in undergraduate coursework and a minimum GPA of 3.5 in all coursework completed for the major.
6. Must present an approved plan of study. The plan should cover the entire time period of the integrated program, and it should be reviewed periodically with an adviser.
7. Must present two letters of recommendation from faculty members. (Note: For Schreyer Honors College students, these can be the same two letters required by the Schreyer Honors College.)
8. Must meet with both the Director of Undergraduate Academic Affairs and the Graduate Program Coordinator to declare interest and receive information about the IUG program.

For Schreyer Honors College students, students admitted to the IUG program may double-count a maximum of 12 credits toward their graduate and undergraduate degrees in Information Sciences and Technology. Thesis or scholarly paper credits may not double-count.

For the B.S. degree in Information Sciences and Technology, a minimum of 125 credits is required.

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

**GENERAL EDUCATION:** 45 credits  
(12 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See description of General Education in front of the *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:** 8 credits

**REQUIREMENTS FOR THE MAJOR:** 84 credits



(This includes 12 credits of General Education courses: 6 credits of GQ courses; 3 credits of GS courses; and 3 credits of GWS courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS): 60 credits**

**PRESCRIBED COURSES (26 credits)**

IST 110 GS(3)[1], IST 210(3)[1], IST 220(3)[1], IST 230(3)[1] (Sem: 1-4)  
STAT 200 GQ(4) (Sem: 3-6)  
IST 495(1)[1] (Sem: 3-8)  
IST 301(3)[1], IST 331(3)[1] (Sem: 5-8)  
IST 440(3)[1] (Sem: 7-8)

**ADDITIONAL COURSES (13 credits)**

CMPSC 101 GQ(3)[1], CMPSC 121 GQ(3)[1], or IST 140(3)[1] (Sem: 1-4)  
ECON 14 GS(3), ECON 102 GS(3), or ECON 104 GS(3) (Sem: 1-4)  
ENGL 202C GWS(3) or ENGL 202D GWS(3) (Sem: 1-4)  
MATH 110 GQ(4) or MATH 140 GQ(4) (Sem: 1-4)

**SUPPORTING COURSES AND RELATED AREAS (21 credits)**

Attainment of third-level proficiency in a single foreign language (12 credits). Proficiency must be demonstrated by either examination or course work. See the admission section of the general information in this *Bulletin* for the placement policy for Penn State foreign language courses. (Sem: 1-4)

Select 6 credits of international courses in foreign culture from College-approved list (Sem: 5-8)

Select 3 credits[1] at the 400 level in emerging issues and technologies from College-approved list (Sem: 5-8)

**REQUIREMENTS FOR THE OPTION: 24 credits**

**INFORMATION CONTEXT: PEOPLE, ORGANIZATIONS, AND SOCIETY OPTION: 24 credits**

**PRESCRIBED COURSES (6 credits)[1]**

IST 431(3) and IST 432(3) (Sem: 5-8)

**ADDITIONAL COURSES (6 credits)[1]**

IST 240(3) or IST 242(3) (Sem: 1-4)  
IST 302(3) or IST 413(3) (Sem: 1-4)

**SUPPORTING COURSES AND RELATED AREAS (12 credits)**

Select 12 credits from College-approved list (at least 3 credits at the 400-level and no more than 6 credits below the 200-level.) (Sem: 5-8)

**INFORMATION SYSTEMS: DESIGN & DEVELOPMENT OPTION: 24 credits**

**PRESCRIBED COURSES (6 credits)[1]**

IST 242(3) (Sem: 1-4)  
IST 311(3) (Sem: 5-8)

**ADDITIONAL COURSES (9 credits)[1]**

Select 3 credits from IST 261(3) or IST 361(3) (Sem: 5-8)  
Select 6 credits from IST 411(3), IST 412(3), or IST 413(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS (9 credits)**

Select 9 credits from College-approved list (at least 3 credits must be at the 400-level.) (Sem: 5-8)

**INFORMATION TECHNOLOGY: INTEGRATION & APPLICATION OPTION: 24 credits**

**PRESCRIBED COURSES (9 credits)[1]**

IST 302(3), IST 420(3), IST 421(3) (Sem: 5-8)

**ADDITIONAL COURSES** (3 credits)[1]

IST 240(3) or IST 242(3) (Sem: 1-4)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)

Select 12 credits from College-approved list (at least 3 credits at the 400-level and no more than 6 credits below the 200-level.) (Sem: 5-8)

**Integrated B.S. in Information Sciences and Technology / M.S. in Information Sciences and Technology**

The College of Information Sciences and Technology offers an integrated B.S./M.S. (IUG) program designed to allow academically superior students in the Information Sciences and Technology major to obtain both the bachelor's in Information Sciences and Technology and M.S. degree in Information Sciences and Technology in a shorter period of time than would be necessary if the degrees were pursued separately. The first two to three years of undergraduate coursework follow the same undergraduate curriculum that other students follow in the Information Sciences & Technology major. Interested students may apply for admission to the IUG program as early as the end of their sophomore year but no later than the end of their junior year after completing a minimum of 60 credits. If admitted to the IUG, the final years of study include two graduate courses, Foundations of Theories and Methods of Information Sciences and Technology Research (IST 504) in the fall and Foundations of Research Design in Information Sciences and Technology (IST 505) in the spring, plus six credits of research methods courses, twelve credits of graduate specialty courses, and six credits of graduate thesis (IST 600) or scholarly paper (IST 594).

(Note: For Schreyer Honors College students, those who complete the graduate thesis for the Master's requirement may use the graduate thesis, itself, to fulfill the undergraduate honors thesis requirement, as well. Honors students who opt for the Master's scholarly paper must also complete an undergraduate honors thesis.)

The integrated B.S. in Information Sciences and Technology /M.S. in Information Sciences and Technology (IUG) degree meets the needs of the most academically talented students in the Information Sciences and Technology undergraduate major. A proportion of these successful students wish to pursue graduate studies sometime after graduation. Offering the IUG benefits these students by offering an accelerated path to a graduate degree. Additionally, the IUG program can provide these students with a more cohesive program of study with opportunities to engage in more comprehensive research leading to both the Bachelor's and Master's degree.

For the B.S. in Information Sciences & Technology/M.S. in Information Sciences & Technology IUG program, a minimum of 125 credits are required for the bachelor's degree and 30 credits for the M.S. degree. Students admitted to the IUG program may double-count a maximum of 12 credits to their graduate and undergraduate degrees. The required 6 credits of IST 504 and IST 505 will apply to both the graduate program and the undergraduate program. Students may choose an additional 6 credits to double-count for both the undergraduate and graduate degrees from the following: IST 411, IST 412, IST 413, IST 420, IST 421, IST 431, IST 432. Graduate thesis or scholarly paper credits may not double-count.

The objectives of the Integrated Undergraduate Graduate Program include:

1. To offer highly qualified students the opportunity to earn two degrees in less time than it would take to do two sequential degrees. In particular, IUG students may count up to 12 credits towards both their B.S. and M.S. degree requirements.
2. To permit coherent planning of studies through the graduate degree, with advising informed by not only the requirements of the baccalaureate program, but also the

- longer-range goals of the graduate degree.
3. To introduce undergraduate students to the rigors of both graduate study and graduate faculty.
  4. To make the resources of the Graduate School available to IUG students.
  5. To allow students with IUG status to benefit from their association with graduate students whose level of work and whose intensity of interest and commitment parallel their own.

## Admission Requirements

To initiate the application process, students must submit an *Integrated Undergraduate-Graduate (IUG) Degree in Information Sciences and Technology Form*, a transcript, and two letters of recommendation (both from faculty members) to the IST Graduate Programs Office. The Director of Undergraduate Academic Affairs, in consultation with the Graduate Programs Coordinator, will help undergraduate candidates determine a proposed sequence of courses that will prepare them for acceptance into the Integrated Undergraduate-Graduate (IUG) degree program. Acceptance into the IST IUG program will be determined by the Graduate Recruitment Committee.

Information Sciences and Technology undergraduate majors may apply for admission no earlier than February 15th of their sophomore year and no later than the February 15th of their junior year after completing a minimum of 60 credits, if they meet the following admission requirements:

1. Must be enrolled in the ISTBS undergraduate degree program.
2. Must have completed 60 credits of an ISTBS undergraduate degree program.
3. Must apply to the IUG program by the end of their junior year.
4. Must apply to and be accepted without reservation into the Graduate School and M.S. program in IST. Students must complete the **Graduate School application**.
5. Must have an overall GPA of 3.5 (on a 4.0 scale) in undergraduate coursework and a minimum GPA of 3.5 in all coursework completed for the major.
6. Must present an approved plan of study. The plan should cover the entire time period of the integrated program, and it should be reviewed periodically with an adviser.
7. Must present two letters of recommendation from faculty members. (Note: For Schreyer Honors College students, these can be the same two letters required by the Schreyer Honors College.)
8. Must meet with both the Director of Undergraduate Academic Affairs and the Graduate Program Coordinator to declare interest and receive information about the IUG program.

For Schreyer Honors College students, students must also follow guidelines and procedures for applying for IUG in the Schreyer Honors College:

**<http://www.shc.psu.edu/students/iug/program/>**

In addition, applicants must apply to and be admitted to the Graduate School of the Pennsylvania State University at the time of their application to the IUG degree program. These admission standards are high, as it is thought the program will only be appropriate for students with high levels of academic skills. The program area does have discretion in admitting Information Sciences and Technology majors into the integrated program, and extenuating circumstances can always be considered in terms of possible admission. Individuals who are unable to be admitted into the integrated program of study can apply for regular admission to the graduate program when they complete their undergraduate program of study.

Sample Sequence of Graduate Coursework in Addition to Undergraduate Courses

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Year	Fall	Spring	MS Credits
Year 1 (Senior Undergraduate Year)	IST 504: Foundations 3 Methods course (3)**	IST 505: Research Design (3) Methods course (3)**	30*
Year 2 (Super Senior Undergraduate Year)	IST 600 or IST 594 Thesis Research (3) Grad Speciality Course (3)** Grad Speciality Course (3)**	Methods course (3)** IST 600 or IST 594 Thesis Research (3) Grad Speciality Course (3)** Grad Speciality Course (3)**	

\* Students admitted to the IUG program may double-count a maximum of 12 credits toward their graduate and undergraduate degrees in Information Sciences and Technology. In their senior year, IUG students will take 6 credits of specified graduate work, courses IST 504 and IST 505, and 6 credits of methods courses. These 6 credits of IST 504 and IST 505 will apply to both the graduate program and the undergraduate IST/B.S. support of option requirement. In their super senior year, students may choose an additional 6 credits to double-count for both the undergraduate and graduate degrees. These courses must be at the 400-level or above. Students may choose any 400-level undergraduate option course (IST 411, IST 412, IST 413, IST 420, IST 421, IST 431, IST 432) that they are using to fulfill an undergraduate option requirement and apply the credits to both the undergraduate option requirement and the graduate specialty course requirement. Credits associated with the thesis or culminating scholarly paper, i.e., IST 600 and IST 594, may not be double-counted. However, for Schreyer Honors College students, the Master's thesis deliverable, itself, may double-count for the undergraduate thesis deliverable requirement.

\*\* Choose graduate level methods course after consultation in advance with the student's faculty adviser.

\*\*\* Choose any 400 or 500 level course that contributes to the student's chosen area of specialty with a maximum of six credits at the 400 level.

The total resulting credits will be a minimum of 155 credits, with 125 credits completed for the undergraduate IST degree. Twelve graduate credits will be completed in the senior year, and the remaining 18 graduate credits will be completed in the super senior year.

If for any reason a student admitted to the B.S./M.S. program is unable to complete the requirement for the Master of Science degree program in Information Sciences and Technology, the student will be permitted to receive the Bachelor's degree assuming all degree requirements have been satisfactorily completed.

Student performance will be monitored on an on-going basis by the student's adviser and Graduate Programs. Students admitted to the integrated program must maintain a minimum cumulative GPA of a 3.3 overall and a minimum 3.0 GPA in all courses used toward the M.S. degree in order to maintain good academic standing and meet graduation requirements. (See information on Grade-Point Average in the Graduate

Bulletin:<http://bulletins.psu.edu/graduate/degree/requirements/masters#>) For Schreyer Honors College students in the IUG program, students must maintain a minimum cumulative GPA of 3.4 overall and a minimum 3.0 GPA in all courses used toward the M.S. degree in order to maintain good academic standing and meet graduation requirements. Successful completion of a Schreyer Scholar's Master's thesis will be accepted as completion of the honors thesis requirement.

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

[2] Students in the Information Systems: Design and Development Option are expected to take IST 242 prior to taking the prescribed and additional courses for that option.

Last Revised by the Department: Fall Semester 2017

Blue Sheet Item #: 46-01-087

Review Date: 8/22/2017

IS

# Kinesiology

Penn State Altoona  
Berks College (KINBL)  
Penn State Harrisburg (KINCA)  
University Park, College of Health and Human Development (KINES)

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

PROFESSOR NANCY I. WILLIAMS, Head, Department of Kinesiology

Kinesiology offers a comprehensive program of study in the science of human movement and is designed for students who want to prepare for professions involving physical activity and for graduate study in related areas. The Kinesiology major options are: Applied Exercise and Health; Movement Science; and Exercise Science (offered only at Penn State Berks). All options require a culminating practicum or research experience. Relocation away from the University Park campus is generally necessary for the practicum. All options require a minimum of 120 credits for graduation. Additional requirements are mandated by the Pennsylvania Department of Education (PDE) for entrance to the Health and Physical Education (HPE) certification emphasis in the Applied Exercise and Health Option (AEH). Additional requirements are mandated by the Pennsylvania Department of Education (PDE) for entrance to the Health and Physical Education (HPE) certification emphasis in the Applied Exercise and Health Option (AEH). Information about the major and its options can be found at <http://www.hhdev.psu.edu/kines/index.html>.

Students who have completed a minimum of 28 credits and have a 2.00 cumulative grade-point average are eligible for entrance into the major after completing an Entrance to Major form.

**APPLIED EXERCISE AND HEALTH OPTION:** This option provides applied interdisciplinary training in the foundations of the scientific understanding of exercise and health through the lifespan. Students identify one of two areas of emphasis that are certification-based and practice-oriented: (a) courses and practical experiences directed toward certification by organizations such as the American College of Sports Medicine (ACSM) or the National Strength and Conditioning Association (NSCA), or (b) a series of courses and student teaching leading to teacher certification. In order to qualify for the teacher certification track, students must meet the requirements mandated by the Pennsylvania Department of

Education (PDE). PDE requirements can be found at <http://www.hhdev.psu.edu/kines/undergraduate/physical-health-education>. The completion of the Applied Exercise and Health Option will prepare students to work in the private or corporate fitness arenas, community-based fitness organizations, and university or hospital settings, or be Pennsylvania certified in health and physical education (K-12) and secure teaching positions in public or private schools.

**MOVEMENT SCIENCE OPTION:** This option provides interdisciplinary scientific training in academic areas such as biomechanics, exercise physiology, movement neuroscience, psychology of physical activity, and sport history and philosophy to understand movement for prevention and diagnosis of chronic disease, rehabilitation and treatment, and/or theoretical study. Students are prepared for graduate study in many clinical fields including medicine, physical therapy, occupational therapy, physical assistant, cardiac rehabilitation, as well as a broad range of careers in biomedical and health-related fields.

**EXERCISE SCIENCE OPTION:** (offered only at Penn State Berks and Penn State Harrisburg) This option is a program of study in the science of exercise. This program offers Kinesiology background and applied experience in fitness assessment, exercise physiology, exercise psychology, motor skill development, nutrition and healthy living skills. Graduates will be able to scientifically assess fitness levels of individuals. Analyzing those assessments, graduates will then be capable of designing and implementing appropriate exercise programs. Students in the Business Emphasis can obtain a Business Minor through this program. Students acquire basic business skills in accounting, marketing, management and entrepreneurial skills. Students choosing the Science Emphasis will select courses from a department list that will enhance their opportunity for graduate studies in Kinesiology-related fields, physical therapy and medical schools. The completion of the Exercise Science Option will enable graduates to compete for employment in the corporate fitness arena, private fitness clubs, community-based fitness organizations, hospital and university settings or possibly to operate their own health and fitness company.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. KINES requires students to complete 24 credits for the major through courses taken at University Park. Courses taken at other Penn State campuses may not be counted toward this 24 credit minimum. For more information, check the Recommended Academic Plan for this major.

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

**GENERAL EDUCATION:** 45 credits  
(18-27 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:** 0-2 credits

**REQUIREMENTS FOR THE MAJOR:** 95-109 credits  
(This includes 18-27 credits of General Education courses: Applied Exercise and Health

Option - 9 credits GN, 6 credits GQ, 3 credits of GH, 6 credits of GS and 3 credits of GHA. Movement Science Option--9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 3 credits of GHA courses. Exercise Science Option--9 credits of GN courses; 6 credits of GQ courses; 3 credits of GHA courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 41-43 credits

**PRESCRIBED COURSES** (28 credits)[1]

BIOL 141 GN(3) (Sem: 1-4)

KINES 202(4), NUTR 251 GHA(3) (Sem: 3-4)

KINES 321(3), KINES 341 US;IL(3), KINES 345(3), KINES 350(3), KINES 360(3), KINES 384(3) (Sem: 3-6)

**ADDITIONAL COURSES** (13-15 credits)[1]

Select 3 credits: KINES 100(3); KINES 141 US;IL(3) (Sem 1-4)

Select 3 credits: KINES 180(3); KINES 101(3) (Sem 1-4)

Select 1 credit: KINES 295B(1); KINES 295(1) (Sem 1-4)

Select 3-4 credits: PHYS 150 GN(3); PHYS 250 GN(4) (Sem: 1-4)

Select 3-4 credits: STAT 200 GQ(4); or STAT 250 GQ(3); or SCM 200 GQ(4) (Sem: 2-6)

**REQUIREMENTS FOR THE OPTION:** 54-66 credits

**APPLIED EXERCISE AND HEALTH OPTION:** (62-66 credits)

**PRESCRIBED COURSES** (34 credits)

CHEM 101 GN(3)[1], CI 280 GH(3), EDPSY 010 GS(3)[1], KINES 200(3)[1], KINES 201(3)[1], KINES 267(1)[1], KINES 367(1)[1], KINES 368 (2)[1], KINES 401(3)[1], KINES 455(3)[1], KINES 456(4)[1], PSYCH 100 GS(3)[1] (Sem: 2-6)

**ADDITIONAL COURSES** (3 credits)

MATH 026 GQ(3)[1] or Satisfactory performance on the MATH placement examination--i.e., placement beyond the level of MATH 026 (Sem: 1-2)

**SUPPORTING COURSES AND RELATED AREAS** (25-29 credits)

Take the following required courses with selected emphasis area:

a. HPE Certification Emphasis (Sem: 7-8)

KINES 366(3), KINES 395A(1), KINES 400(3), KINES 464(3), KINES 468W(3), SPLED 400(4) (Sem: 7)

KINES 495A(12) (Sem: 8)

b. ACSM/NSCA Certification Emphasis (Sem: 7-8)

KINES 395(1), KINES 421(3), KINES 457(3), KINES 485(3), KINES 492(3)

Select 3 credits from approved 400-level KINES courses: KINES 410(3), KINES 411(3), KINES 422(3), KINES 424 US(3), KINES 425(3), KINES 460(3), KINES 465(3), KINES 467(3), KINES 481(3), KINES 483(3), KINES 493(3) (Sem: 7)

KINES 495B(6), KINES 495E(3) (Sem: 8)

**MOVEMENT SCIENCE OPTION:** (54-56 credits)

**PRESCRIBED COURSES** (24 credits)[1]

BIOL 110 GN(4), BIOL 142(1), CHEM 111 GN(1), CHEM 112 GN(3), CHEM 113 GN(1) (Sem: 1-4)

PHYS 251 GN(4), PSYCH 100 GS(3) (Sem: 3-6)

KINES 395B(1) (Sem: 5-8)

KINES 495B(6) (Sem: 7-8)

**ADDITIONAL COURSES** (21-23 credits)

CHEM 106 GN(5)[1]; or CHEM 110 GN(3)[1] (Sem: 1-4)

MATH 026 GQ(3)[1]; or Satisfactory performance on the MATH placement

examination--i.e., placement beyond the level of MATH 026 (Sem: 1-4)

Select an additional 15 credits from approved 400-level KINES courses:

KINES 410(3), KINES 411(3), KINES 420(3), KINES 421(3), KINES 422(3), KINES 423(3), KINES 424 US(3), KINES 425(3), KINES 426(3), KINES 427(3), KINES 428(3), KINES 429(3), KINES 439(3), KINES 440(3), KINES 441 US(3), KINES 442 IL(3), KINES 443 IL(3), KINES 444 US(3), KINES 446 IL(3), KINES 447(3), KINES 450(3), KINES 452(3), KINES 453(3), KINES 454(3), KINES 455(3), KINES 456(4), KINES 457(3), KINES 460(3), KINES 463(3), KINES 465(3), KINES 467(3), KINES 481(3), KINES 483(3), KINES 484(3), KINES 485(3), KINES 488(3), KINES 492(3), KINES 493(3), KINES 495E(3), KINES 499 IL(1-12) (Sem: 5-8)

### **SUPPORTING COURSES AND RELATED AREAS** (9 credits)

Select 9 credits in University-wide offerings from an approved list, in consultation with advisor. (Sem: 1-8)

### **EXERCISE SCIENCE OPTION:** (54-56 credits)

#### **PRESCRIBED COURSES** (29 credits)**[1]**

KINES 200(3), KINES 201(3), KINES 260(3), (Sem: 3-4)

KINES 356(3), KINES 358(I) (Sem: 5-6)

KINES 420(3), KINES 456(4), KINES 457(3), KINES 495C(6) (Sem: 7-8)

#### **ADDITIONAL COURSES** (9-11 credits)

CHEM 101 GN(3)**[1]**; or CHEM 106 GN(5)**[1]**; or CHEM 110 GN(3)**[1]** and CHEM 111 GN(1)**[1]** (Sem: 1-2)

MATH 022 GQ(3)**[1]**; or Satisfactory performance on the MATH placement examination--i.e., placement beyond the level of MATH 022 (Sem: 1-2)

Select 3 credits from KINES 001 GHA(1.5) to KINES 099(3) (Sem: 1-2)

### **SUPPORTING COURSES AND RELATED AREAS** (16 credits)

Select 16 credits from one of the following emphasis area from an approved list, in consultation with advisor. At least 3 credits must be at the 400 level.

a. Business Emphasis (Sem: 1-8)

b. Science Emphasis (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.

Lasted Revised by the Department: Fall Semester 2015

Blue Sheet Item #: 44-03-043

Review Date: 11/17/2015

UCA Revision #1: 8/8/06

HH

## **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

## Organizational Leadership

*Berks College**University Park, College of the Liberal Arts (OL BS): offered via World Campus*PROFESSOR Brian Redmond, *Professor-in-charge*

The degree draws on many of the disciplines of the liberal arts, as well as business and science, to illuminate the issues that all leaders face regarding work and employment issues in the 21st Century, as well as in other aspects of organizational life more generally. Students select courses in crime, law, and justice, economics, political science, sociology, labor and employment relations, communication arts and sciences, statistics, management, and psychology. The goal is to provide a broad education that introduces methods of analysis used in the disciplines of the liberal arts and prepares students to understand the complex social, cultural, and organizational issues that they will confront in leadership positions in the modern world. Upon successful completion of the B.S. degree in Organizational Leadership, students should be better able to:

1. Understand the roles and the major functions of leadership in contemporary organizations;
2. Articulate the theoretical and empirical foundations for different approaches to the exercise of leadership;
3. Detect, accurately frame, and select appropriate strategies for overcoming obstacles to effective organizational performance that leaders face;
4. Exhibit intellectual and behavioral competencies useful in the successful execution of critical organizational tasks and the management of relationships;
5. Recognize the internal structures of organizations and their impact on members' performance;
6. Appreciate the social processes operative in the exercise of influence, as well as how to improve them;
7. Draw on their knowledge of leadership in transitioning from lower-level to higher-level positions of responsibility and authority in organizations;
8. Bring a global perspective to the exercise of leadership; and
9. Grasp the importance of enacting leadership responsibly and in an ethically

defensible manner.

For the B.S. degree in Organizational Leadership, a minimum of 123 credits is required.

**GENERAL EDUCATION:** 45 credits

(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 REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

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

**ELECTIVES:** 18 credits

**REQUIREMENTS FOR THE MAJOR:** 64-66 credits<sup>[1]</sup>

(This includes 4 credits of General Education GQ courses.)

**PRESCRIBED COURSES** (34 credits)

CAS 352(3), ECON 102 GS(3), ECON 104 GS(3), OLEAD 100 GS(3), OLEAD 409(3), OLEAD 464(3), OLEAD 465(3), PHIL 10 GH(3), PSYCH 100 GH(3), PSYCH 281 GS(3), STAT 200 GQ(4) (Sem: 1-5)

**ADDITIONAL COURSES** (12-13 credits)

Choose one course from each area.

1. Conflict Management  
CAS 404(3) or LER 437(3) (Sem: 5-8)
2. Research Methods  
LER 312(4) or SOC 207(3) (Sem: 5-8)
3. Motivation  
MGMT 321(3) or PSYCH 484(3) (Sem: 5-8)
4. Ethics  
LER 460(3) or PHIL 119 GH(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (18-19 credits)

At least 15 credits must be at the 400-level.

(Courses that are used in the Additional Courses category may not be double-counted to satisfy this requirement.)

CAS 404(3), CAS 452(3), CAS 475(3), CRIM 100 GS(3), CRIM 113 US(3), CRIM 482(3), LER 100 GS(3), LER 136 US(3), LER 201 GS(3), LER 312(4), LER 400 IL(3), LER 434(3), LER 435(3), LER 437(3), LER 458 US(3), LER 460(3), MGMT 321(3), PHIL 103 GH(3), PHIL 119(3), PLSC 1 GS(3), PLSC 490(3), PSYCH 484(3), PSYCH 485(3), SOC 207(3), SOC 404(3), SOC 455(3), SOC 456(3) (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: Fall Semester 2012

Blue Sheet Item #: 41-04-065

Review Date: 01/15/2013

UCA Revision #1: 8/9/06  
UCA Revision #2: 7/30/07

LA

## Professional Writing

*Berks College (PWRIT)*

The major is intended to prepare students to write effectively in a variety of workplace and academic settings. Methods of instruction draw upon the strategies and techniques of practicing writers outside of the University, including workshops, peer conferencing, collaborative writing, portfolio preparation, and internships. At the same time, theory courses provide the necessary background to help students understand and appreciate the larger issues surrounding the writing and reading of texts.

As a liberal arts degree, the Professional Writing major is appropriate for students who wish to develop a set of applied communication skills to prepare for a wide range of professional positions or for graduate or professional schools. The degree differs from most current English majors in at least three ways: 1) a practical orientation prepares graduates for employment, in addition to post-graduate English studies; 2) a multidisciplinary focus integrates courses from the liberal arts, business, and information technology; and 3) a required internship ensures that students actively apply their skills.

For the B.A. degree in Professional Writing, a minimum of 123 credits is required.

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

**GENERAL EDUCATION:** 45 credits

### **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, GENERAL EDUCATION course selection, or 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.)

**ELECTIVES:** 15 credits

**REQUIREMENTS FOR THE MAJOR:** 39 credits<sup>[1]</sup>

**PRESCRIBED COURSES** (15 credits)

ENGL 211W(3) (Sem: 3-4)

ENGL 417(3), ENGL 471(3), ENGL 491(3), ENGL 495(3) (Sem: 5-8)

**ADDITIONAL COURSES** (24 credits)

### **Rhetorical Theory**

Select 3 credits from the following:

ENGL 472(3), ENGL 473(3), ENGL 474(3) (Sem: 5-8)

### **Writing for Publication**

Select 3 credits from the following:  
COMM 260W(3), ENGL 215(3) (Sem: 5-8)

### **Workplace Writing**

Select 3 credits from the following:  
ENGL 418(3), ENGL 419(3)

### **Visual Design**

Select 3 credits from the following:  
ENGL 420(3), ENGL 480(3)

### **Advertising and Public Relations**

Select 3 credits from the following:  
COMM 320(3), COMM 370(3)

### **Creative Writing**

Select 3 credits from the following:  
ENGL 212(3), ENGL 213(3), ENGL 415(3)

### **Additional Writing Courses**

Select 6 credits from the following  
CAS 214(3), COMM 260W(3), COMM 320(3), COMM 370(3), ENGL 110(3), ENGL 212(3),  
ENGL 213(3), ENGL 215(3), ENGL 250(3), ENGL 415(3), ENGL 416(3), ENGL 418(3), ENGL  
419(3), ENGL 420(3), ENGL 421(3), ENGL 472(3), ENGL 473(3), ENGL 474(3), ENGL 480(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.

Last Revised by the Department: Summer Session 2010

Blue Sheet Item #: 39-01-065

Review Date: 08/24/2010

BK

## **Rehabilitation and Human Services**

*Penn State Abington (RHSAB)*

*Penn State Berks (RHSBL)*

*University College: Penn State Hazleton, Penn State Lehigh Valley, Penn State Wilkes-Barre (RHSCC)*

*University Park, College of Education (RHS)*

PROFESSOR JAMES HERBERT, *Undergraduate Program Coordinator*

This major helps prepare students for entry-level positions in a variety of human service settings, particularly settings that provide services to persons with physical, emotional, or mental disabilities. Graduates pursue employment in a variety of settings including rehabilitation centers, drug and alcohol programs, senior citizens centers, community mental health programs, mental retardation programs, corrections systems, and hospitals. Increasing opportunities are available in private for-profit insurance programs for the industrially injured, and in employee assistance programs within business and

industry. Well-planned use of electives and internships allows for specialization. The full-semester (15-credit) internship is provided under the supervision of professionals in human service agencies. These intensive "hands-on" experiences are frequently avenues for employment since the internship is completed during the senior year. Students may not go on internship until they have successfully completed all other course work. Students are encouraged to participate in volunteer experiences that provide opportunities to work with people with disabilities. Students are encouraged to declare a minor in a related area and should be discussed with the student's adviser. The major also helps prepare students for graduate study in many human service professional disciplines such as rehabilitation counseling, school counseling, occupational therapy, physical therapy and social work.

Baccalaureate degree candidates must have a minimum 2.0 GPA to be admitted to the Rehabilitation and Human Services (RHS) major; thereafter, students must earn a C or better in all RHS required courses.

For the B.S. degree in Rehabilitation and Human Services, a minimum of 120 credits is required.

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

**GENERAL EDUCATION:** 45 credits

(12-14 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 REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 17-20 credits

**REQUIREMENTS FOR THE MAJOR:** 70-72 credits

(This includes 12-14 credits of General Education courses; 6 credits of GS courses; 3-4 credits of GQ courses; 3-4 credits of GN courses.)

**PRESCRIBED COURSES** (55 credits)

PSYCH 100 GS(3), RHS 100 GS;US(3) (Sem: 1-4)

PSYCH 270(3), SOC 1 GS(3), SOC 119(4) (Sem: 1-6)

RHS 300(3)[1], RHS 301(3)[1], RHS 302(3)[1], RHS 303(3)[1], RHS 400(3)[1], RHS 401(3)[1], RHS 402(3)[1], RHS 403(3)[1], RHS 495A(15) (Sem: 5-8)

**ADDITIONAL COURSES** (9-11 credits)

EDPSY 10 GS(3), HDFS 239 GS(3), or PSYCH 212 GS(3) (Sem: 1-2)

Select 3-4 credits from ANTH 21 GN(3), BISC 1 GN(3), BISC 2 GN(3), BISC 3 GN(3), BISC 4 GN(3), BIOL 133 GN(3), BIOL 110 GN(4), or BIOL 141 GN(3) (Sem: 1-6)

STAT 100 GQ(3) or STAT 200 GQ(4) or EDPSY 101 GQ(3) (Sem: 1-6)

**SUPPORTING AND RELATED COURSES** (6 credits)

Select 6 credits from CRIM, BBH, HDFS, KINES, PSYCH, or SOC (Sem: 3-8)

[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.

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 41-05-082

Review Date: 02/19/2013

UCA Revision #1: 9/1/06

PIC updated: 2/13/12

ED

## Science

*Abington College (SCIAB)*

*Altoona College (SCIAL)*

*Berks College (SCIBL)*

*Capital College (SCICA)*

*University College (SCICC): Penn State Worthington-Scranton, Penn State York*

*University Park, Eberly College of Science (SC BS)*

*Integrated Five-Year Science/Business M.B.A. Program (SCBUS)*

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

PROFESSOR RONALD MARKLE, *in charge*

The Science major is an interdisciplinary degree that aims to provide a broad, general education in science. The bachelor of science (B.S.) curriculum is designed specifically for students who have education goals relating to scientific theory and practice and who require a high degree of flexibility to obtain their educational objectives. After completing foundation courses in calculus, chemistry, physics, and the life sciences, students will select additional science courses from designated areas. A large number of supporting credits permit students to readily include significant breadth or specialization into their undergraduate curriculum. Some examples include minors in business, computer and information science, education, kinesiology, or other fields. The degree allows students throughout the Commonwealth to become familiar with both the theory and the practice of science. It can help prepare students for various careers in pharmaceutical, biotechnical, chemical, medical, and agricultural industries. The degree can also be tailored to meet the specific requirements of professional programs such as medical, dental, or pharmacy schools. The General Science option of the B.S. Science degree allows for the most flexibility. Achievement in a more specialized set of goals can be met by selecting one of the other B.S. options offered: the Biological Sciences and Health Professions option, the Legal Studies, Government Service, Public Policy option, the Life Sciences option, the Mathematical Sciences option, or the Physical Sciences option. Not all of these options are available at all locations, and there are minor distinctions of the core curriculum at some locations, so see the Science program director at your College for further details.

In order to be eligible for entrance to the Science major, a student at any location must have: 1) attained at least a 2.00 cumulative grade-point average; 2) completed MATH 140 GQ(4) with a grade of C or better; 3) completed at least two of the following courses, BIOL 110 GN(4); CHEM 110 GN(3); PHYS 211 GN(4) or PHYS 250 GN(4), with a grade of C or better.

For the B.S. degree in Science, a minimum of 124 credits is required, with at least 15 credits at the 400 level.

**TWO-YEAR PREPROFESSIONAL PREPARATION:** The first two years of the Science major (62 credits) can meet the pre professional needs of those interested in admission to some schools of pharmacy, physical therapy, optometry, nursing, and physician assistant training. Successful students can then transfer after two years of undergraduate study to the professional school to which they are admitted. Note, however, that no Penn State degree can be awarded after only two years (62 credits) of study in the Science major. Also, note that the abbreviated two-year curriculum alone does not prepare students for admission to professional schools of general medicine, veterinary medicine, or dental medicine. Consult with your college's health sciences professional adviser for additional information.

**ACCELERATED SCIENCE B.S./M.B.A. PROGRAM:** Students admitted to this special cooperative program between the Eberly College of Science and The Smeal College of Business will be able to combine a Bachelor of Science degree in the Science major, with a Master of Business Administration degree. Highly motivated students, who enter the University with a sufficient number and proper distribution of AP credits, will have the opportunity to complete the requirements for both programs within five years. The B.S. degree in the Science major General Science option, will be conferred upon satisfactory completion of:

1. A minimum of 112 acceptable undergraduate credits, which must include:
  1. (24 credits) The University's General Education requirements in the areas of Writing and Speaking (9), Health and Physical Activity (3), Arts (6), Humanities (6). The University's General Education requirements in the areas of Quantification, Natural Sciences, and Social and Behavioral Sciences will be satisfied by course work listed under headings "c" and "f".)
  2. The University's First-Year Seminar, United States Cultures, International Cultures, and Writing Across the Curriculum requirements. (Note: These requirements may be double counted in order to satisfy other requirements in the program.)
  3. (52-57 credits) BIOL 110 GN(4), CHEM 110 GN(3), CHEM 111(1), CHEM 112 GN(3), CHEM 113 GN(1), CMPSC 203 GQ(4), MATH 140 GQ(4), MATH 141 GQ(4); 3-4 credits from STAT 200 GQ(4), or STAT 250 GQ(3) or STAT 301(3) or STAT 401(3); 8-12 credits from PHYS 211 GN(4), PHYS 212 GN(4), PHYS 213 GN(2), PHYS 214 GN(2), or PHYS 250 GN(4), PHYS 251 GN(4); 3 additional life science credits from B M B 211(3), B M B 251(3), or MICRB 201(3); and 14 additional credits of course work from the Eberly College of Science, with at least nine credits at the 400 level.
  4. (0-8 credits) Demonstration of second semester proficiency in a single foreign language.
  5. (3-9 credits) SC 295(1-3), SC 395(1-3), SC 495(1-3) (Note: Students must complete three Eberly College of Science Cooperative Education experiences, including at least one experience which is a full semester in length.)
  6. (10 credits) ECON 102 GS(3), ECON 104 GS(3), ACCTG 211(4)
  7. (4-23 credits) Supporting courses and related areas selected from the program list.
2. The first semester of course work in The Smeal College of Business M.B.A. program (i.e., a minimum of 12 graduate credits).

*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 GENERAL EDUCATION course selection or SUPPORTING COURSES AND RELATED AREAS)



**UNITED STATES CULTURES AND INTERNATIONAL CULTURES:**

(Included in GENERAL EDUCATION course selection or SUPPORTING COURSES AND RELATED AREAS)

**WRITING ACROSS THE CURRICULUM:**

(Included in GENERAL EDUCATION course selection or REQUIREMENTS FOR THE MAJOR or SUPPORTING COURSES AND RELATED AREAS)

**REQUIREMENTS FOR THE MAJOR: 94 credits**

(This includes 15 credits of General Education courses: 9 credits of GN courses; 6 credits of GQ courses.)

**COMMON REQUIREMENTS FOR MAJOR (All options)****PRESCRIBED COURSES (20 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) (Sem: 1-2)  
BIOL 110 GN(4)[1] (Sem: 1-4)

**REQUIREMENTS FOR THE OPTIONS: 74 credits****GENERAL SCIENCE OPTION: (74 credits)****ADDITIONAL COURSES (15-20 credits)**

Select 4 credits from BIOL 129 GN(4), BIOL 220W(4), BIOL 230W(4), BIOL 240W(4) or BIOL 141 GN(3) and BIOL 142(1) (Sem: 3-4)

Select 3-4 credits from STAT 200 GQ(4), or STAT 250 GQ(3) or STAT 301(3) or STAT 401(3) (Sem: 3-4)

Select 8-12 credits from PHYS 211 GN(4)[1], PHYS 212 GN(4), PHYS 213 GN(2), PHYS 214 GN(2); or PHYS 250 GN(4)[1], PHYS 251 GN(4) (Sem: 3-6)

**SUPPORTING COURSES AND RELATED AREAS (54-59 credits)**

(A maximum of 12 credits of Independent Study [296, 496] may be applied toward credits for graduation.)

Select 21-26 credits from program list (Students may apply 6 credits of ROTC.) (Sem: 1-8)

Select 3 credits from earth and mineral sciences (Sem: 3-8)

Select 18 credits in life, mathematical, or physical sciences, with at least 9 credits[1] at the 400 level[60] (Sem: 3-8)

Select 3 credits in Global, Social and Personal Awareness from department approved course list in consultation with adviser (Sem: 3-8)

Select 3 credits in Teamwork and Interpersonal Communication from department approved course list in consultation with adviser (Sem: 3-8)

Select 6 credits of 400-level courses (Sem: 5-8)

**BIOLOGICAL SCIENCES AND HEALTH PROFESSIONS OPTION: (74 credits)****PRESCRIBED COURSES (3 credits)**

H P A 101(3) (Sem: 3-6)

**ADDITIONAL COURSES (24-31 credits)**

Select 4 credits from BIOL 129 GN(4), BIOL 220W(4), BIOL 230W(4), BIOL 240W(4) or BIOL 141 GN(3) and BIOL 142(1) (Sem: 3-4)

Select 3-4 credits from STAT 200 GQ(4), or STAT 250 GQ(3) or STAT 301(3) or STAT 401(3) (Sem: 3-4)

Select 6-8 credits from CHEM 210(3), CHEM 212(3), CHEM 213(2) or CHEM 202(3), CHEM 203(3) (Sem: 3-6)

Select 3 credits from B M B 211(3), B M B 251(3), MICR B 201(3), BIOL 222(3), or BIOL 322(3) (Sem: 3-6)

Select 8-12 credits from PHYS 211 GN(4)[1], PHYS 212 GN(4), PHYS 213 GN(2), PHYS 214 GN(2); or PHYS 250 GN(4)[1], PHYS 251 GN(4) (Sem: 3-6)

### **SUPPORTING COURSES AND RELATED AREAS** (40-47 credits)

(A maximum of 12 credits of Independent Study [296, 496] may be applied toward credits for graduation.)

Select 15 credits from program list for Healthcare/ Medicine/Ethical Competencies; 6 credits must be at the 400-level (Sem: 3-8) Select from department approved course list in consultation with adviser.

Select 10-17 credits from program list (Students may apply 6 credits of ROTC. (Sem: 1-8)

Select 3 credits in Global, Social and Personal Awareness from department approved course list in consultation with adviser (Sem: 3-8)

Select 3 credits in Teamwork and Interpersonal Communication from department approved course list in consultation with adviser (Sem: 3-8)

Select 9 credits[1] of 400-level B M B, BIOL, BIOTC, or MICRB courses (Sem: 5-8)

### **LEGAL STUDIES, GOVERNMENT SERVICE, PUBLIC POLICY OPTION** (74 credits)

#### **ADDITIONAL COURSES** (15-20 credits)

Select 4 credits from BIOL 129 GN(4), BIOL 220W(4), BIOL 230W(4), BIOL 240W(4) or BIOL 141 GN(3) and BIOL 142(1) (Sem: 3-4)

Select 3-4 credits from STAT 200 GQ(4), or STAT 250 GQ(3) or STAT 301(3) or STAT 401(3) (Sem: 3-4)

Select 8-12 credits from PHYS 211 GN(4)[1], PHYS 212 GN(4), PHYS 213 GN(2), PHYS 214 GN(2); or PHYS 250 GN(4)[1], PHYS 251 GN(4) (Sem: 3-6)

### **SUPPORTING COURSES AND RELATED AREAS** (54-59 credits)

Select 12-17 credits from program list (Students may apply 6 credits of ROTC. (Sem: 1-8)

Select 18 credits in life, mathematical, or physical sciences, with at least 9 credits[1] at the 400 level[60] (Sem: 3-8)

Select 18 credits from program list for Legal Studies, Government Service, Public Policy; 6 credits must be at the 400-level (Sem: 3-8) Select from department approved course list in consultation with adviser.

Select 3 credits in Global, Social and Personal Awareness from department approved course list in consultation with adviser (Sem: 3-8)

Select 3 credits in Teamwork and Interpersonal Communication from department approved course list in consultation with adviser (Sem: 3-8)

### **LIFE SCIENCE OPTION:** (74 credits)

#### **ADDITIONAL COURSES** (24-30 credits)

Select 4 credits from BIOL 220W GN(4), BIOL 230W GN(4), BIOL 240W GN(4) (Sem: 3-4)

Select 3 credits from CMPSC 101 GQ(3), MATH 250(3), or STAT 250 GQ(3) (Sem: 3-4)

Select 3 credits from B M B 211(3), B M B 251(3), or MICRB 201(3) (Sem: 3-4)

CHEM 202(3), CHEM 203(3); or CHEM 210(3), CHEM 212(3), CHEM 213(2) (Sem: 3-6)

PHYS 211 GN(4)[1], PHYS 212 GN(4), PHYS 213 GN(2), PHYS 214 GN(2); or PHYS 250 GN(4)[1], PHYS 251 GN(4) (Sem: 3-6)

### **SUPPORTING COURSES AND RELATED AREAS** (44-50 credits)

(A maximum of 12 credits of Independent Study [296, 496] may be applied toward credits for graduation.)

Select 23-29 credits from program list (Students may apply 6 credits of ROTC.) (Sem: 1-8)

Select 3 credits in Global Social and Personal Awareness

Select 3 credits in Teamwork and Interpersonal Communication

Select 6 credits of 400-level courses (Sem: 5-8)

Select 9 credits[1] of 400-level B M B, BIOL, BIOTC, or MICRB courses (Sem: 5-8)

**MATHEMATICAL SCIENCE OPTION:** (74 credits)

**PRESCRIBED COURSES** (5-6 credits)

CMPSC 122(3), MATH 220 GQ(2-3) (Sem: 3-6)

**ADDITIONAL COURSES** (24-29 credits)

Select 3 credits from B M B 211(3), B M B 251(3), or MICRB 201(3) (Sem: 3-4)

CMPSC 121 GQ(3), CMPSC 201 GQ(3), or CMPSC 202 GQ(3) (Sem: 3-6)

MATH 230(4) or MATH 251(4) (Sem: 3-6)

CMPSC 360(3) or MATH 311W(3-4); STAT 301 GQ(3) or STAT 318(3) (Sem: 3-8)

PHYS 211 GN(4)[1], PHYS 212 GN(4), PHYS 213 GN(2), PHYS 214 GN(2); or PHYS 250 GN(4)[1], PHYS 251 GN(4) (Sem: 3-8)

**SUPPORTING COURSES AND RELATED AREAS** (39-45 credits)

(A maximum of 12 credits of Independent Study [296, 496] may be applied toward credits for graduation.)

Select 18-24 credits from program list (Students may apply 6 credits of ROTC.) (Sem: 1-8)

Select 9 credits[1] of 400-level CMPSC, CSE, MATH, or STAT courses (Sem: 5-8)

Select 6 credits of 400-level courses (Sem: 5-8)

Select 3 credits in Global, Social & Personal Awareness

Select 3 credits in Teamwork & Interpersonal Communication

**PHYSICAL SCIENCE OPTION:** (74 credits)

**PRESCRIBED COURSES** (15 credits)

ASTRO 291 GN(3), PHYS 211 GN(4)[1], PHYS 212 GN(4), PHYS 213 GN(2), PHYS 214 GN(2) (Sem: 3-6)

**ADDITIONAL COURSES** (16-18 credits)

Select 3 credits from B M B 211(3), B M B 251(3), or MICRB 201(3) (Sem: 3-4)

CHEM 202(3), CHEM 203(3); or CHEM 210(3), CHEM 212(3), CHEM 213(2) (Sem: 3-6)

MATH 230(4) or MATH 251(4) (Sem: 3-6)

Select 3 credits from ASTRO 292 GN(3); E MCH 211(3); M E 300(3); or PHYS 237(3) (Sem: 3-8)

**SUPPORTING COURSES AND RELATED AREAS** (41-43 credits)

(A maximum of 12 credits of Independent Study [296, 496] may be applied toward credits for graduation.)

Select 20-22 credits from program list (Students may apply 6 credits of ROTC.) (Sem: 1-8)

Select 6 credits of 400-level courses (Sem: 5-8)

Select 9 credits[1] of 400-level ASTRO, CHEM, or PHYS courses (Sem: 5-8)

Select 3 credits in Global, Social & Personal Awareness

Select 3 credits in Teamwork & Interpersonal Communication

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

**[60]** Physical sciences include ASTRO, CHEM, PHYS; mathematical sciences include CMPSC, MATH, STAT; life sciences include BIOL, BIOTC, B M B, MICRB.

Last Revised by the Department: Fall Semester 2016

Blue Sheet Item #: 45-01-001

Review Date: 08/23/2016

UCA Revision #1: 9/1/06

UCA Revision #2: 7/730/07

# Security and Risk Analysis

*Penn State Altoona (SRAAL)*

*Penn State Berks (SRABL)*

*Penn State Harrisburg (SRACA)*

*University Park, College of Information Sciences and Technology (SRA)*

*World Campus*

*Mary Beth Rosson, Associate Dean for Graduate and Undergraduate Studies, College of IST*

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

The Bachelor of Science in Security and Risk Analysis (SRA) in the College of Information Sciences and Technology is intended to familiarize students with the general frameworks and multidisciplinary theories that define the area of security and related risk analyses. Courses in the major will engage students in the challenges and problems associated with assuring information confidentiality and integrity (e.g., social, economic, technology-related, and policy issues), as well as the strengths and weaknesses of various methods for assessing and mitigating associated risk.

The major provides a grounding in the analysis and modeling efforts used in information search, visualization, and creative problem solving. This knowledge is supplemented through an examination of the legal, ethical, and regulatory issues related to security that includes analyzing privacy laws, internal control and regulatory policies, as well as basic investigative processes and principles. Such understanding is applied to venues that include transnational terrorism, cyber crimes, financial fraud, risk mitigation, and security and crisis management. It also includes overviews of the information technology that plays a critical role in identifying, preventing and responding to security-related events.

Advisory groups from within and outside the University involved in the design of the major have agreed that graduates who can understand the cognitive, social, economic, and policy issues involved in security and risk management as well as the basics of the information technology and analytics that are included in the security/risk arena will be very successful. These observations drove the design and objectives of the SRA major.

SRA majors will choose one of the following options:

**INTELLIGENCE ANALYSIS AND MODELING OPTION.** This option focuses on developing a more thorough knowledge of the strategic and tactical levels of intelligence collection, analysis, and decision-making. This includes examining the foundations of decision analysis, economic theory, statistics, data mining, and knowledge management, as well as the security-specific contexts in which such knowledge is applied.

**INFORMATION AND CYBER SECURITY OPTION.** This option includes a set of courses that provides an understanding of the theories, skills, and technologies associated with network security, cyber threat defense, information warfare, and critical infrastructure protection across multiple venues.

**Entrance Requirements:** To be eligible for entrance to the Security and Risk Analysis (SRA) major, students must:

1. have completed the following entrance-to-major requirements with grades of C or better in each: IST 140(3) (or equivalent CMPSC 101 GQ(3) or CMPSC 121 GQ(3)), IST

210(3), SRA 111(3); and SRA 211(3).

2. have achieved a minimum cumulative grade point average of 2.00 prior to and through the end of the semester during which the entrance-to-major procedure is carried out.

The Integrated Undergraduate Graduate (IUG) program is available for strong undergraduate students who wish to pursue a bachelor's and master's degree in a shorter period of time than would be necessary if the degrees were pursued separately. Security and Risk Analysis undergraduates may apply for admission to the SRABS/ISTMS IUG program as early as the end of their sophomore year but no later than the end of their junior year after completing a minimum of 60 credits, if they meet the following admission requirements:

1. Must be enrolled in the SRABS undergraduate degree program.
2. Must have completed 60 credits of an SRABS undergraduate degree program.
3. Must apply to the IUG program by the end of their junior year.
4. Must apply to and be accepted without reservation into the Graduate School and M.S. program in IST. Students must complete the **Graduate School application**.
5. Must have an overall GPA of 3.5 (on a 4.0 scale) in undergraduate coursework and a minimum GPA of 3.5 in all coursework completed for the major.
6. Must present an approved plan of study. The plan should cover the entire time period of the integrated program, and it should be reviewed periodically with an adviser.
7. Must present two letters of recommendation from faculty members. (Note: For Schreyer Honors College students, these can be the same two letters required by the Schreyer Honors College.)
8. Must meet with both the Director of Undergraduate Academic Affairs and the Graduate Program Coordinator to declare interest and receive information about the IUG program.

For Schreyer Honors College students, students admitted to the IUG program may double-count a maximum of 12 credits toward their graduate and undergraduate degrees in Information Sciences and Technology. Thesis or scholarly paper credits may not double-count.

For the B.S. degree in Security and Risk Analysis, a minimum of 120 credits is required.

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

**GENERAL EDUCATION:** 45 credits

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

(See description of General Education in front of the *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:** 4 credits

**REQUIREMENTS FOR THE MAJOR:** 92 credits

(This includes 21 credits of General Education courses: 6 credits of GQ courses; 6 credits of GS courses; 3 credits of GWS courses, 3 credits of GH, and 3 credits of GN courses)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 71 credits

**PRESCRIBED COURSES** (35 credits)

CMPSC 101 GQ(3)[1], SRA 111 GS(3)[1] (Sem: 1-2)

IST 110 GS(3)[1] (Sem: 1-3)

IST 210(3)[1] (Sem: 1-4)

SRA 211(3)[1], SRA 221(3)[1], SRA 231(3)[1] (Sem: 2-4)

STAT 200 GQ(4) (Sem: 3-6)

IST 495(1)[1] (Sem: 3-8)

IST 432(3)[1], SRA 311(3)[1], IST 440(3)[1] (Sem: 7-8)

**ADDITIONAL COURSES** (15 credits)

AGBM 101 GS(3) or ECON 102 GS(3) (Sem: 1-4)

PLSC 1 GS(3), PLSC 14 GS;IL(3), or GEOG 40 GS;IL(3) (Sem: 1-4)

PSYCH 100 GS(3) or SOC 5 GS(3) (Sem: 1-6)

ENGL 202C GWS(3) or ENGL 202D GWS(3) (Sem: 5-8)

SRA 365(3)[1]; STAT 460(3)[1] (Sem: 5-6)

**SUPPORTING COURSES AND RELATED AREAS** (21 credits)

Attainment of third-level proficiency in a single foreign language (12 credits). Proficiency must be demonstrated by either examination or course work. See the admission section of the general information in this *Bulletin* for the placement policy for Penn State foreign language courses. (Sem: 1-4)

Select 3 credits of INatural Sciences (GN) in consultation with adviser (Sem: 1-6)

Select 6 credits of international courses from College-approved list or other courses approved by adviser. (Sem: 5-8)

**REQUIREMENTS FOR THE OPTION:** 21 credits**INTELLIGENCE ANALYSIS AND MODELING OPTION:** (21 credits)**PRESCRIBED COURSES** (12 credits)[1]

ECON 302 GS(3), SRA 421(3) (Sem: 3-6)

SRA 433(3), SRA 468(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (9 credits)

Select 9 credits from College-approved list (at least 3 credits must be at the 400-level) (Sem: 5-8)

**INFORMATION AND CYBER SECURITY OPTION:** (21 credits)**PRESCRIBED COURSES** (12 credits)[1]

IST 220(3) (Sem: 1-6)

IST 451(3), IST 454(3), IST 456(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (9 credits)

Select 9 credits from College-approved list (at least 3 credits must be at the 400-level) (Sem: 5-8)

## **Integrated B.S. in Security and Risk Analysis / M.S. in Information Sciences and Technology**

The College of Information Sciences and Technology offers an integrated B.S./M.S. (IUG) program designed to allow academically superior students in the Security and Risk Analysis major to obtain both the Bachelor's in Security and Risk Analysis and the M.S. degree in Information Sciences and Technology in a shorter period of time than would be necessary if the degrees were pursued separately. The first two to three years of undergraduate coursework follow the same undergraduate curriculum that other students

follow in the Security and Risk Analysis major. Interested students may apply for admission to the IUG program as early as the end of their sophomore year but no later than the end of their junior year after completing a minimum of 60 credits. If admitted to the IUG, the final years of study include two graduate courses, Foundations of Theories and Methods of Information Sciences and Technology Research (IST 504) in the fall and Foundations of Research Design in Information Sciences and Technology (IST 505) in the spring, plus six credits of research methods courses, twelve credits of graduate specialty courses, and six credits of graduate thesis (IST 600) or scholarly paper (IST 594).

(Note: For Schreyer Honors College students, those who complete the graduate thesis for the Master's requirement may use the graduate thesis, itself, to fulfill the undergraduate honors thesis requirement, as well. Honors students who opt for the Master's scholarly paper must also complete an undergraduate honors thesis.)

The integrated B.S. in Security and Risk Analysis / M.S. in Information Sciences and Technology (IUG) degree meets the needs of the most academically talented students in the Security and Risk Analysis undergraduate major. A proportion of these successful students wish to pursue graduate studies sometime after graduation. Offering the IUG benefits these students by offering an accelerated path to a graduate degree. Additionally, the IUG program can provide these students with a more cohesive program of study with opportunities to engage in more comprehensive research leading to both the bachelor's and master's degree.

For the B.S. in Security and Risk Analysis / M.S. in Information Sciences and Technology IUG program, a minimum of 120 credits is required for the bachelor's degree and 30 credits for the M.S. degree. Students admitted to the IUG program may double-count a maximum of 12 credits to their graduate and undergraduate degrees. The required 6 credits of IST 504 and IST 505 will apply to both the graduate program and the undergraduate program. Students may choose an additional 6 credits to double-count for both the undergraduate and graduate degrees from the following: SRA 433, SRA 468, SRA 471, IST 451, IST 452, IST 454, IST 456. Graduate thesis or scholarly paper credits may not double-count.

The objectives of the Integrated Undergraduate Graduate Program include:

1. To offer highly qualified students the opportunity to earn two degrees in less time than it would take to do two sequential degrees. In particular, IUG students may count up to 12 credits towards both their B.S. and M.S. degree requirements.
2. To permit coherent planning of studies through the graduate degree, with advising informed by not only the requirements of the baccalaureate program, but also the longer-range goals of the graduate degree.
3. To introduce undergraduate students to the rigors of both graduate study and graduate faculty.
4. To make the resources of the Graduate School available to IUG students.
5. To allow students with IUG status to benefit from their association with graduate students whose level of work and whose intensity of interest and commitment parallel their own.

## Admission Requirements

To initiate the application process, students must submit an *Integrated Undergraduate-Graduate (IUG) Degree in Security and Risk Analysis Form*, a transcript, and two letters of recommendation (both from faculty members) to the IST Graduate

Programs Office. The Director of Undergraduate Academic Affairs, in consultation with the Graduate Programs Coordinator, will help undergraduate candidates determine a proposed sequence of courses that will prepare them for acceptance into the Integrated Undergraduate-Graduate (IUG) degree program. Acceptance into the IST IUG program will be determined by the Graduate Recruitment Committee.

Security and Risk Analysis undergraduate majors may apply for admission no earlier than February 15th of their sophomore year and no later than February 15th of their junior year after completing a minimum of 60 credits, if they meet the following admission requirements:

1. Must be enrolled in the SRA (BS) undergraduate degree program.
2. Must have completed 60 credits of an SRABS undergraduate degree program.
3. Must apply to the IUG program by the end of their junior year.
4. Must apply to and be accepted without reservation into the Graduate School and M.S. program in IST. Students must complete the **Graduate School application**.
5. Must have an overall GPA of 3.5 (on a 4.0 scale) in undergraduate coursework and a minimum GPA of 3.5 in all coursework completed for the major.
6. Must present an approved plan of study. The plan should cover the entire time period of the integrated program, and it should be reviewed periodically with an adviser.
7. Must present two letters of recommendation from faculty members. (Note: For Schreyer Honors College students, these can be the same two letters required by the Schreyer Honors College.)
8. Must meet with both the Director of Undergraduate Academic Affairs and the Graduate Program Coordinator to declare interest and receive information about the IUG program.

For Schreyer Honors College students, students must also follow guidelines and procedures for applying for IUG in the Schreyer Honors College:

**<http://www.shc.psu.edu/students/iug/program/>**

In addition, applicants must apply to and be admitted to the Graduate School of the Pennsylvania State University at the time of their application to the IUG degree program.

These admission standards are high, as it is thought the program will only be appropriate for students with high levels of academic skills. The program area does have discretion in admitting Security and Risk Analysis majors into the integrated program, and extenuating circumstances can always be considered in terms of possible admission. Individuals who are unable to be admitted into the integrated program of study can apply for regular admission to the graduate program when they complete their undergraduate program of study.

#### Sample Sequence of Graduate Coursework in Addition to Undergraduate Courses

Year	Fall	Spring	MS Credits
Year 1 (Senior Undergraduate Year)	IST 504: Foundations (3)	IST 505: Research Design (3)	
	Methods course (3)**	Methods course (3)**	
Year 2	IST 600 or IST 594	IST 600 or IST 594	
	Thesis Research (3)	Thesis Research (3)	



(Super Senior Undergraduate Year)	Grad Specialty Course (3) <sup>***</sup>	Grad Specialty Course (3) <sup>***</sup>	30*
	Grad Specialty Course (3) <sup>***</sup>	Grad Specialty Course (3) <sup>***</sup>	

\* Students admitted to the IUG program may double-count a maximum of 12 credits toward their graduate and undergraduate degrees in Information Sciences and Technology. In their senior year, IUG students will take 6 credits of specified graduate work, courses IST 504 and IST 505, and 6 credits of methods courses. These 6 credits of IST 504 and IST 505 will apply to both the graduate program and the undergraduate IST/SRA support option requirement. In their super senior year, students may choose an additional 6 credits to double-count for both the undergraduate and graduate degrees. These courses must be at the 400-level or above. Students may choose any 400-level undergraduate Option course (SRA 433, SRA 468, SRA 471, IST 451, IST 452, IST 454, IST 456) that they are using to fulfill an undergraduate option requirement and apply the credits to both the undergraduate option requirement and the graduate specialty course requirement. Credits associated with the thesis or culminating scholarly paper, i.e., IST 600 and IST 594, may not be double-counted. However, for Schreyer Honors College students, the Master's thesis deliverable, itself, may double-count for the undergraduate thesis deliverable requirement.

\*\* Choose graduate level methods course after consultation in advance with the student's faculty adviser.

\*\*\* Choose any 400 or 500 level course that contributes to the student's chosen area of specialty with a maximum of six credits at the 400 level.

The total resulting credits will be a minimum of 150 credits, with 120 credits completed for the undergraduate SRA degree. Twelve graduate credits will be completed in the senior year, and the remaining 18 graduate credits will be completed in the super senior year.

If for any reason a student admitted to the B.S./M.S. program is unable to complete the requirement for the Master of Science degree program in Information Sciences and Technology, the student will be permitted to receive the SRA bachelor's degree assuming all degree requirements have been satisfactorily completed.

Student performance will be monitored on an on-going basis by the student's adviser and Graduate Programs. Students admitted to the integrated program must maintain a minimum cumulative GPA of a 3.3 overall and a minimum 3.0 GPA in all courses used toward the M.S. degree in order to maintain good academic standing and meet graduation requirements. (See information on Grade-Point Average in the Graduate Bulletin: <http://bulletins.psu.edu/graduate/degreerequirements/masters#>) For SHC students in the IUG program, students must maintain a minimum cumulative GPA of 3.4 overall and a minimum 3.0 GPA in all courses used toward the M.S. degree in order to maintain good academic standing and meet graduation requirements. Successful completion of a Schreyer Scholar's Master's thesis will be accepted as completion of the honors thesis 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 2017

Blue Sheet Item #: 46-01-088

Review Date: 8/22/2017

UCA Revision #1: 8/14/06

## Comments

IS

# Theatre

*Berks College (THABL)*

*University Park, College of Arts and Architecture (THRBA)*

PROFESSOR RADHICA GANAPATHY, *Penn State Berks*

PROFESSOR ELISHA CLARK HALPIN, *Penn State University Park*

This program offers the theatre student a general background in the various facets of theatre. A broad liberal education is provided and complemented with advanced courses to best serve student interests, talents, and career objectives. Though a strong emphasis is given to the areas of production and performance, majors may also wish to emphasize an area of special interest such as literature, design, dance, playwriting, directing or acting. All B.A. students spend a semester in study abroad studying at the Theatre Academy of London (TAL), a program that balances academic courses with advance studio work.

Students who pursue the B.A. in Theatre learn to research, analyze and synthesize information. Majors develop strong oral and written skills and many go on to postgraduate study not only in theatre but also in areas such as law, business and education.

The B.A. in Theatre degree program includes a Theatre Studies Option and three additional options, Theatre Performance, Dance Performance and Multicultural Performance. Entrance criteria to this major will include an interview with members of the Theatre faculty. Entrance to the three performance options will also include an audition or portfolio review. All four options are available at University Park; the Theatre Studies and Theatre Performance options only are available at Penn State Berks.

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

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

**GENERAL EDUCATION:** 45 credits

(1.5-7.5 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 REQUIREMENTS FOR THE MAJOR)

**WRITING ACROSS THE CURRICULUM:**

(Included in REQUIREMENTS FOR THE MAJOR)

**ELECTIVES:** 10-11 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: 44.5-51.5 credits** **[1]**

(This includes 1.5-7.5 credits in General Education courses: 1.5 credits GHA courses; 0-6 credits of GH courses.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS): 29.5-30.5 credits**

**PRESCRIBED COURSES** (6.5 credits)

DANCE 170 GHA(1.5), THEA 289(1) (Sem: 1-2)

THEA 001(1) (Sem: 1-4)

THEA 401 IL(3) (Sem: 3-6)

**ADDITIONAL COURSES** (11-12 credits)

Select 3 credits from THEA 102 GA(3) or THEA 120(3) (Sem: 1)

Select 2-3 credits from THEA 107 GA(3) or THEA 200(2) (Sem: 1-2)

Select 3 credits from THEA 100 GA;US;IL(3) or THEA 105 GA(3) (Sem: 1-2)

Select 3 credits from THEA 130(3) or THEA 131(3) (Sem: 3-4)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)

Select 12 credits THEA 499 or DANCE 499 (Sem: 6-8)

**REQUIREMENTS FOR THE OPTION: 15-21 credits**

**THEATRE STUDIES OPTION: (15 credits) [1]**

**PRESCRIBED COURSES** (9 credits) **[1]**

THEA 150(3) (Sem: 1-4)

THEA 402(3), THEA 434(3) (Sem: 5-8)

**ADDITIONAL COURSES** (6 credits) **[1]**

Select 6 credits from THEA 405 US(3), THEA 407 US(3), THEA 408 US(3), THEA 412 US;IL(3), or THEA 464(3) (Sem: 5-8)

**THEATRE PERFORMANCE OPTION (21 credits) [1]**

**PRESCRIBED COURSES** (9 credits)

THEA 150(3) (Sem: 1-2)

THEA 402(3), THEA 434(3) (Sem: 3-6)

**ADDITIONAL COURSES** (12 credits):

Select 3 credits from THEA 121(3) or THEA 289(3) (Sem: 1-4)

Select 3 credits from THEA 405 US(3), THEA 407 US(3), THEA 408 US(3), THEA 412 US;IL(3), THEA 464(3) (Sem: 5-8)

Select 6 credits (with permission of adviser/instructor) from:

THEA 220(3), THEA 221(3), THEA 322(2), THEA 324(2) (Sem: 3-8)

OR

THEA 410(3), THEA 436(3), THEA 437(1-6) (Sem: 5-8)

OR

THEA 440(3-6) (Sem: 5-8)

OR

THEA 250(3), THEA 251(2), THEA 252(1), THEA 260(3), THEA 270(3), THEA 350(3) (Sem: 3-8)

**DANCE PERFORMANCE OPTION: (18 credits)**

**PRESCRIBED COURSES** (3 credits) **[1]**

DANCE 410 US;IL(3) (Sem: 5-6)

**ADDITIONAL COURSES** (15 credits) **[1]**

Select 9 credits from DANCE 361(1.5), DANCE 362(1.5), DANCE 461(1.5), DANCE 462(1.5) (Sem: 1-7)

Select 6 credits from THEA 146(2), THEA 402(3), THEA 405(3), THEA 407(3), THEA 408(3), THEA 412(3), THEA 440(3), DANCE 411(3) (Sem: 2-8)

**MULTICULTURAL PERFORMANCE OPTION** (21 credits)

**PRESCRIBED COURSES** (9 credits) **[1]**

DANCE 411 GH(3), THEA 412 US;IL(3), THEA 495(3) (Sem: 4-8)

**ADDITIONAL COURSES** (9 credits)

Select 3 credits from CMLIT 10 GH;IL(3), CMLIT 12 GH;IL(3), CMLIT 101 GH;US;IL(3) (Sem: 3-6)

Select 6 credits from CAS 271 US;IL(3), CMLIT 13 GH;IL(3), CMLIT 140 GH;IL(3), CMLIT 189 GH;IL(3), CMLIT 422 IL(3), CMLIT 435 IL(3), CMLIT 438 IL(3), CMLIT 453 IL(3), CMLIT 455 IL(3), CMLIT 486 IL(3), CMLIT 487 IL(3), CMLIT 488 IL(3), CMLIT 491 IL(3), DANCE 221(1.5), DANCE 320(1.5), ENGL 135 GH;US(3), ENGL 226 GH;US;IL(3), ENGL 235 US(3), ENGL 245 GH;US(3), ENGL 426 US(3), ENGL 431 US(3), INART 5 GA(3), INART 62 GA;US;IL(3), MUSIC 7 GA;US(3), MUSIC 9(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (3 credits)

Select 3 credits in consultation with adviser (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 2013

Blue Sheet Item #: 42-04-001

Review Date: 01/14/2014

AA

## Associate Degrees

# Business Administration

*Abington College (2BAAB)*

*Altoona College (2BAAL)*

*Berks College (2BABL)*

*Capital College (2BACA)*

*University College (2BACC): Penn State Brandywine, Penn State DuBois, Penn State Fayette, Penn State Hazleton, Penn State Mont Alto, Penn State New Kensington, Penn State Lehigh Valley, Penn State Schuylkill, Penn State Shenango, Penn State Wilkes-Barre, Penn State Worthington Scranton, Penn State York*

*University College (2BACC): Via World Campus*

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

The associate degree program in Business Administration provides an introductory foundation to core aspects of the business environment that prepares graduates for future baccalaureate study in business or for direct entry into the work place. The primary objective of this major is to provide a business-oriented program with sufficient

communicative and mathematical skills, socially relevant course work, and specific business specialties to develop a well-rounded and knowledgeable graduate.

Students should work closely with academic advisers to schedule course work required to transition to baccalaureate business programs.

**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 Business Administration, a minimum of 60 credits is required.

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

**GENERAL EDUCATION:** 21 credits

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

**REQUIREMENTS FOR THE MAJOR:** 48-50 credits

(This includes 3 credits of GQ General Education courses and 6 credits of GWS General Education courses.)

**PRESCRIBED COURSES** (13 credits)

CAS 100 GWS(3) (Sem: 2-4)

ACCTG 211(4), ENGL 202D GWS(3)**[1]**, MIS 204(3) (Sem: 2-4)

**ADDITIONAL COURSES** (23-24 credits)

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

MATH 21 GQ(3), MATH 22 GQ(3), or MATH 110 GQ(4) (Sem: 1-2)

BA 243(4) or BA 241(2) and BA 242(2) (Sem: 1-4)

ECON 102 GS(3) or ECON 104 GS(3) (Sem: 1-4)

MGMT 301(3)**[1]** or MGMT 301W(3)**[1]** (Sem: 3-4)

MKTG 301(3)**[1]** or MKTG 301W(3)**[1]** (Sem: 3-4)

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

**SUPPORTING COURSES AND RELATED AREAS** (12-13)

Select 12-13 credits from: BA 100(3); BA 250(3); BA 364(3); CAS 250(3) or CAS 252(3); CAS 352(3); MATH 22 GQ(3); MATH 110 GQ(4); ACCTG 300 to 399(3); ECON 100 to ECON 399(3); ENTR 100 to 399(3); FIN 100 to 399(3); HPA 100 to 399(3); IB 303 IL(3); LER 100 to 399(3); MGMT 100 to 399(3); MKTG 100 to 399(3); MIS 100 to 399(3); RM 100 to 399(3); or SCM 200 to 399(3) (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.

Last Revised by the Department: Spring Semester 2017

Blue Sheet Item #: 45-04-001

Review Date: 1/10/17

UCA Revision #1: 8/9/06

UCA Revision #2: 7/26/07

UC

## Information Sciences and Technology

*Berks College (2ISBL)*

*Continuing Education, University Park (2 IST)*

*University College: Penn State DuBois, Penn State Hazleton, Penn State Lehigh Valley, Penn State Mont Alto, Penn State New Kensington, Penn State Wilkes-Barre, Penn State Worthington Scranton, Penn State York (2ISCC)*

*World Campus*

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

PROFESSOR MARY BETH ROSSON, *Associate Dean for Graduate and Undergraduate Studies*

This associate degree major is structured to prepare graduates for immediate and continuing employment opportunities in the broad disciplines of information science and technology. This includes positions such as application programmers, associate systems designers, network managers, Web designers and administrators, or information systems support specialists. Specifically, the major is designed to ensure a thorough knowledge of information systems and includes extensive practice using contemporary technologies in the creation, organization, storage, analysis, evaluation, communication, and transmission of information. The major fosters communications, interpersonal, and group interaction skills through appropriate collaborative and active learning projects and experiences. Technical material covers the structure of database systems, Web and multi-media systems, and considerations in the design of information systems. Team projects in most courses, a required internship, and a second-year capstone experience provide additional, focused venues for involving students in the cutting-edge issues and technologies in the field.

The Associate of Science in IST degree will be offered at multiple campuses within the Penn State system of colleges and campuses. Note that not all options will be available at all locations.

**Baccalaureate Option:** This option provides maximum articulation with the baccalaureate degree. Students who complete this option will meet all lower division requirements for the baccalaureate degree. This is not the case with the remaining options, although the degree of articulation is quite high for all associate degree options.

**Generalized Business Option:** This option enables students to specialize in the general business areas of accounting, marketing, and management.

**Individualized Option:** This option enables students to work closely with an adviser to develop a plan of study that meets the dual objectives of allowing a flexible academic program and providing breadth of technical specialization. An example would be a program where a student would take some of the courses listed in the Web Administration option and the remainder in the Software option.

**Software Option:** This option prepares graduates for entry-level programming support positions in industry. Students take courses in Web programming, database programming, and other contemporary programming environments.

**Networking Option:** This option prepares graduates for positions as entry-level computer network administrators. Students take courses in personal computer hardware, networking essentials, and network administration.

**Telecommunications Option:** This option prepares graduates for entry-level positions in the telecommunications industry. Students take courses in voice and data communications, protocols, networks, and wireless systems.

**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 IST, a minimum of 60 credits is required.

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

**GENERAL EDUCATION:** 21 credits

(9-12 of these 21 credits are included in the REQUIREMENTS FOR THE MAJOR)  
(See the description of General Education in this bulletin.)

**ELECTIVES:** 4-7 credits

**REQUIREMENTS FOR THE MAJOR:** 44-46 credits

(This includes 9-12 credits of General Education courses, i.e., ALL options: 3 credits of GQ courses; 6 credits of GWS courses. The Baccalaureate Option also includes 3 credits of GS courses to equal a total of 12 credits that double count; the General Business Option also includes 0-3 credits of GS courses to equal 9-12 credits that double count.)

**COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS):** 29 credits

**PRESCRIBED COURSES** (25 credits)

CMPSC 101 GQ(3)[\[1\]](#) (Sem: 1-2)

CAS 100B GWS(3), IST 110 GS(3)[\[1\]](#), IST 111S(1)[\[1\]](#), IST 210(3)[\[1\]](#), IST 220(3)[\[1\]](#), IST 250(3)[\[1\]](#), ENGL 015 GWS(3) (Sem: 1-2)

IST 260(3)[\[1\]](#) (Sem: 3-4)

**ADDITIONAL COURSES** (4 credits)

ENGL 202C GWS(3) or ENGL 202D GWS(3) (Sem: 3-4)

IST 295A(1)[\[1\]](#) or IST 295B(1)[\[1\]](#) (Sem: 3-4)

**REQUIREMENTS FOR THE OPTION:** 15-17 credits

**BACCALAUREATE OPTION:** (17 credits)

**PRESCRIBED COURSES** (13 credits)

IST 230(3)[\[1\]](#) and IST 240(3)[\[1\]](#) (Sem: 3-4)

ECON 102 GS(3) (Sem: 3-4)

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

**ADDITIONAL COURSES** (4 credits)

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

**GENERALIZED BUSINESS OPTION:** (15-16 credits)

**ADDITIONAL COURSES** (15-16 credits)

Select 15 credits in consultation with the adviser from the following list: (Sem:1-4)

ACCTG 151(3), ACCTG 152(3), ACCTG 153(3), ACCTG 160(3), ACCTG 170(3), ACCTG 211(4), BA 250(3), MKTG 220(3), MKTG 221(3), MKTG 310(3), MKTG 327(3), MGMT 100(3), MGMT 150(3), MGMT 321(3), MGMT 341(3)

ECON 102 GS(3), ECON 104 GS(3), or ECON 014 GS(3)

MATH 017 GQ(3), MATH 021 GQ(3), MATH 022 GQ(3), or MATH 026 GQ(3)

**INDIVIDUALIZED OPTION:** (15 credits)

**SUPPORTING COURSES AND RELATED AREAS** (15 credits)

Select 15 credits in consultation with an adviser that follow a coherent theme in information sciences and technology with a grade of C or better required for all IST[\[1\]](#) courses. (Sem: 1-4)

**SOFTWARE OPTION:** (15 credits)

**PRESCRIBED COURSES** (12 credits)

CMPSC 302(3) (Sem: 2-4)

IST 211(3)[1], IST 247(3)[1], and IST 256(3)[1] (Sem: 3-4)

**ADDITIONAL COURSES** (3 credits)

MATH 017 GQ(3), MATH 021 GQ(3), MATH 022 GQ(3), or MATH 026 GQ(3) (Sem: 1-2)

**NETWORKING OPTION:** (15 credits)

**PRESCRIBED COURSES** (12 credits)

IST 225(3)[1], IST 226(3)[1], IST 227(3)[1], and IST 228(3)[1] (Sem: 3-4)

**ADDITIONAL COURSES** (3 credits)

MATH 017 GQ(3), MATH 021 GQ(3), MATH 022 GQ(3), or MATH 026 GQ(3) (Sem: 1-2)

**TELECOMMUNICATIONS OPTION:** (15 credits)

**PRESCRIBED COURSES** (12 credits)

IST 221(3)[1], IST 222(3)[1], IST 223(3)[1], and IST 224(3)[1] (Sem: 3-4)

**ADDITIONAL COURSES** (3 credits)

MATH 017 GQ(3), MATH 021 GQ(3), MATH 022 GQ(3), or MATH 026 GQ(3) (Sem: 1-2)

[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 #: 45-04-069A

Review Date: 1/10/2017

UCA Revision #2: 7/27/07

IS

## 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

## Occupational Therapy

*Berks College (2OTBL)*

*University College (2OTCC): Penn State DuBois, Penn State Mont Alto, Penn State Shenango*

This major helps graduates prepare to be occupational therapy assistants who are qualified to be employed by agencies that provide occupational therapy and related services. The goal of occupational therapy is to enable the client to be as independent as possible in the daily performance of self-care, productive, and leisure occupations. General education, basic science, and occupational therapy courses are followed by supervised field experience. Upon successful graduation from the program, students must sit for and successfully pass the National Board for Certification in Occupational Therapy (NBCOT) national certification examination to practice. Most states also require licensure as a condition for employment. A felony conviction may affect a graduate's ability to sit for the NBCOT certification examination and obtain licensure. NBCOT may be contacted at NBCOT, 12 South Summit Avenue, Suite 100, Gaithersburg, MD 20877. 301-990-7979 or on the Web at [www.NBCOT.org](http://www.NBCOT.org).

To enter this major, students must have a high school diploma or its equivalent. To be admitted to degree candidacy, the applicant must have completed educational background requirements called Carnegie Units or Secondary School Units. Students are responsible for proof of liability insurance and other requirements specified by the facility providing supervised field experience.

The size of each entering class is limited so that optimal clinical experiences and practical application situations can be maintained. Students are expected to progress through the program in the prescribed manner. Fieldwork affiliations are maintained over a wide geographical area. Students may be required to make special housing and transportation arrangements during the fieldwork phase. Students must complete all Level II fieldwork within eighteen months of successful completion of OTA didactic course work. The 2OTCC and 2OTBL curricula are delivered in five semesters.

**ENTRANCE REQUIREMENTS:** Students must have a minimum 2.0 GPA to change to this Associate degree after admission to the University.

The Penn State Occupational Therapy program is fully accredited by ACOTE which can be reached at: Accreditation Council for Occupational Therapy Education, 4720 Montgomery Lane, Bethesda, MD 20814, 301-652-2682 or on the Web at [www.aota.org](http://www.aota.org).

For the Associate in Science degree in Occupational Therapy, a minimum of 69 credits is required.

*Scheduling Recommendation 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.)

**REQUIREMENTS FOR THE MAJOR:** 60 credits

(This includes 12 credits of General Education courses; 3 credits of GWS courses; 6 credits of GS courses; 3 credits of GN courses.)

**PRESCRIBED COURSES** (60 credits)

BIOL 129 GN(4)[\[1\]](#), BIOL 141 GN(3)[\[1\]](#), BIOL 142(1)[\[1\]](#), ENGL 015 GWS(3), HDFS 129 GS(3),

OT 100(1), OT 101(2)[\[1\]](#), OT 195A(1)[\[1\]](#), PSYCH 100 GS(3) (Sem: 1-2)

OT 103 US(3)[\[1\]](#), OT 105(3)[\[1\]](#), OT 107(3)[\[1\]](#) (Sem: 2-3)

KINES 013 GHA(1), OT 109(3)[\[1\]](#) (Sem: 3-4)

OT 195B(1)[\[1\]](#), OT 201(3)[\[1\]](#), OT 202(3)[\[1\]](#), OT 204(3)[\[1\]](#), OT 206(4)[\[1\]](#) (Sem: 4)

OT 295A(6)[\[1\]](#), OT 295B(6)[\[1\]](#) (Sem: 5)

**[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 #: 45-04-037A

Review Date: 1/10/2017

UCA Revision #1: 8/9/06

## Minors

### Biology Minor (BIOL)

*Contacts: Altoona College, Edward Levri, [epl1@psu.edu](mailto:epl1@psu.edu); Eberly College of Science, Barbara DeHart, [bzd2@psu.edu](mailto:bzd2@psu.edu); Penn State Abington, Eric Ingersoll, [epi1@psu.edu](mailto:epi1@psu.edu); Penn State Berks, Maureen Dunbar, [med18@psu.edu](mailto:med18@psu.edu); Penn State York, Dr. Anne Vardo-Zalik, [amv12@psu.edu](mailto:amv12@psu.edu)*

This minor is designed for students in non-Life Science majors, who desire to obtain an in-depth and well-rounded knowledge of Biology -- the science of life and living organisms. This minor is not intended for "Life Science" oriented majors, including Biological Anthropology, Premedicine, and Science, Life Science option. After taking an introductory survey course which exposes students to the basics of Biology, including the chemistry of life, cell structure, genetics, mechanisms of evolution and evolutionary history of biological diversity, plant and animal form and function, and ecology, students select additional courses based on their biological emphasis to account for a total of 18-20 credits. In conjunction with the student's major, the minor prepares students for entry to graduate school or professional school programs, as well as for technical or research careers with governmental agencies or industry. Majors complemented by this minor would include but not be limited to other life and physical sciences, engineering, and business.

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:** 18-20 credits

**PRESCRIBED COURSES** (4 credits)

BIOL 110 GN(4) (Sem. 5-6)

**ADDITIONAL COURSES** (7-8 credits)

Select 7-8 credits from BIOL 129 GN(4), BIOL 141 GN(3), BIOL 142(1), BIOL 222(3), BIOL 220W GN(4), BIOL 230W GN(4), BIOL 240W GN(4), BIOL 322(3) (Sem: 5-8)

**SUPPORTING COURSES AND RELATED AREAS** (6-9 credits)

Select 6-9 credits from 400-level Biology courses (BIOL 400, BIOL 496, and SC 495 credits may not be used to fulfill this requirement.) (Sem: 5-8)

Last Revised by the Department: Fall Semester 2007

Blue Sheet Item #: 35-06-521

Review Date: 4/10/07

## **Business Minor**

Penn State Abington, Dr. Feng Zhang, fzz34@psu.edu  
University College via World Campus, Lehigh Valley

*Contacts: Business Minor Contact at campuses offering the BSB major or University College at: sah43@psu.edu; Lehigh Valley - Maung Min*

The Business minor is a strong complement to virtually any major. Courses prescribed for the minor are taught by Penn State faculty providing courses to the B.S. in Business and the A.S. in Business Administration. It provides students with the opportunity to develop and apply skills appropriate to the business contexts of their chosen majors. Students pursuing the Business minor must complete thirteen credits of prescribed course work and six credits of additional course work. A grade of C or better is required for all courses in the minor. The prescribed thirteen credits of coursework presents students with a critical foundation of core business disciplines: accounting, management, marketing, and either macro- or micro-economics. The six credits of additional coursework must be taken at the 400-level.

The additional coursework enables students to expand on the core foundation in one of two ways. They may choose to solidify their business knowledge base by exploring six credits of 400-level business courses in the following disciplines: Accounting; Business Administration; Business Law; Energy Business and Finance; Economics; Entrepreneurship; Finance; Financial Services; Health Policy and Administration; International Business; Labor Studies and Employment Relations; Management Information Systems; Management; Marketing; Risk Management; Supply Chain Management; or Statistics. Alternately, students can augment three credits of 400-level coursework in one of the above listed business disciplines with three credits of 400-level work from an approved list of specific business-related course in disciplines such as Communication Arts and Sciences; Corporate Communication; Communications; Criminal Justice; Engineering; English; Human Development and Family Studies; History; Hospitality Management; Information Sciences and Technology; Kinesiology; Philosophy; Political Science; Psychology; Recreation, Park and Tourism Management; or Sociology.

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

**REQUIREMENTS FOR THE MINOR: 19 credits**

**PRESCRIBED COURSES:** (10 credits)

ACCTG 211(4) (Sem: 1-5)

MGMT 301(3), MKTG 301(3) (Sem: 5-8)

**ADDITIONAL COURSES:** (3 credits)

Select 3 credits from ECON 102 GS(3) or ECON 104 GS(3) (Sem: 1-5)

**SUPPORTING COURSES AND RELATED AREAS:** (6 credits)

Select 3-6 credits at the 400 level from:

ACCTG, BA, BLAW, EBF, ECON, ENTR, FIN, FINSV, HPA, IB, LER, MIS, MGMT, MKTG, RM, SCM, or STAT (Sem: 5-8)

Select 0-3 credits at the 400-level from:

CAS 404(3), CAS 452(3), CAS 483(3), CC 401(3), CC 403(3), COMM 421W(3), COMM 427(3), COMM 471(3), CRIMJ 408(3), CRIMJ/SOC 467(3), ENGL 419(3), ENGL 420(3), ENGR 425(3), HDFS 401(3), HDFS 424(3), HDFS 425(3), HDFS 455(3), HIST 458(3), HM 435(3), HM 471(3), HM 484(3), IST 402(3), IST 420(3), IST 425(3), IST 431(3), IST 432(3), IST 461(3), KINES 438(3), KINES 492(3), PHIL 406(3), PLSC 440 US;IL(3), PSYCH 404(3), PSYCH 408(3), PSYCH 423(3), PSYCH 482(3), PSYCH 484(3), PSYCH 485(3), RPTM 410(3), RPTM 415(3), RPTM 470(3), SOC 455(3), SOC 456(3) (Sem: 5-8)

Last Revised by the Department: Fall Semester 2014

Blue Sheet Item #: 43-03-174

Review Date: 11/18/2014

UCA Revision #1: 8/3/06

**Comments**

AB/BK/UC

## Chemistry Minor

*Penn State Berks, Ivan Shibley, [ias1@psu.edu](mailto:ias1@psu.edu)  
University Park, Eberly College of Science (CHEM)*

*Contact: Altoona College - Richard Bell, [rcb155@psu.edu](mailto:rcb155@psu.edu); Penn State Erie, The Behrend College - Grace Galinato, [mig11@psu.edu](mailto:mig11@psu.edu); Eberly College of Science - Mark Maroncelli, [mxm11@psu.edu](mailto: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](mailto:rae2@psu.edu) (Coordinator of the program)*

*Penn State Abington - Gary Calore, [gsc1@psu.edu](mailto:gsc1@psu.edu)*

*Penn State Brandywine - Lynn Hartle, [lch1@psu.edu](mailto:lch1@psu.edu)*

*Penn State Erie - Dawn Blasko, [dgb6@psu.edu](mailto:dgb6@psu.edu)*

*Penn State Greater Allegheny - Michael Vicaro, [mpv2@psu.edu](mailto:mpv2@psu.edu)*

*Penn State Beaver - JoAnn Chirico, [jxc64@psu.edu](mailto:jxc64@psu.edu)*

*Penn State Lehigh Valley - Mary Hutchinson, [mcl6@psu.edu](mailto:mcl6@psu.edu)*

*Penn State Schuylkill - Elinor Madigan, [emm17@psu.edu](mailto:emm17@psu.edu)*

*Penn State Mont Alto - Jacqueline Schwab, [sen@psu.edu](mailto:sen@psu.edu)*

*Penn State Berks - Laurie Grobman, [leg8@psu.edu](mailto: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 Sciences Minor (CAS)**

Contact: Penn State Abington, Roy Robson, [rrr5237@psu.edu](mailto:rrr5237@psu.edu); College of the Liberal Arts, Peter Miraldi, [pnm10@psu.edu](mailto:pnm10@psu.edu); Penn State York, Dr. Deborah Eicher-Catt, [dle4@psu.edu](mailto:dle4@psu.edu)

This minor provides understanding and practice in the ways humans achieve their personal and career goals by means of communication. Students may choose any of the department's pathways of specialization, such as Interpersonal, Family, Intercultural, Organizational, Legal, Political Communication and Presentation Skills, Communication and Technology, or Rhetoric. For example, Legal Communication focuses on communication within the legal system, and provides students with the theory and skills to understand the uses, evaluation, and structure of public policy and legal disputes. Students learn how perception, meaning, and conflict function in human communication if they choose to specialize in Interpersonal Communication, while Organizational Communication critically examines leadership, decision-making, interviewing, and teamwork in formal organizations. In coordination with an adviser, a student of any major may tailor this minor to complement his or her educational and career goals by pursuing a particular pathway.

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 CAS 203(3), CAS 205(3), CAS 211(3), CAS 213(3), CAS 214(3), CAS 215(3), CAS 250(3), CAS 252(3), CAS 271 US;IL(3), CAS 280(3), or CAS 283(3) (Sem: 3-6)  
Select 3 credits from CAS 200(3), CAS 201 GH(3), or CAS 202(3) (Sem: 3-8)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)

Select 6 credits of Communication Arts and Sciences courses (Sem: 1-8)

Select 6 credits of Communication Arts and Sciences courses at the 400 level (Sem: 1-8)

*Note:* CAS 100 GWS(3), CAS 126(3), or CAS 195(1) may not be counted as part of the minor.

Last Revised by the Department: Fall Semester 2002

Blue Sheet Item #: 30-07-104

Review Date: 2/25/05

LA

## **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

## **Criminal Justice Minor**

*Abington College (CJ) contact: Patricia Collins, pxc36@psu.edu*

*Altoona College (CJ)*

*Penn State Beaver contact: Mari Pierce, mbp16@psu.edu*

*Penn State Berks - Jennifer Murphy*

*Penn State Fayette (CJCC)*

*Penn State Harrisburg contact: Shaun Gabbidon, slg13@psu.edu*

*Penn State New Kensington contact: Jeffrey Roth, jjr30@psu.edu*

*Penn State World Campus*

The Criminal Justice minor provides an overview of the criminal justice system and a thorough grounding in criminological theory. Students receive an in-depth look at the three main system components: policing, courts, and corrections, as well as the opportunity to delve into two or more specialized topics relating to criminal justice. The minor is designed not only for students who have a professional interest in criminal justice, but also for those who want to be informed members of the voting citizenry. A functional understanding of crime and the criminal justice system is useful in many careers, including law, social work, education, and journalism.

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)

CRIMJ 100(3) (Sem:1-4)

CRIMJ 210(3), CRIMJ 220(3), CRIMJ 230(3) (Sem: 3-6)

**SUPPORTING COURSES AND RELATED AREAS:** (6 credits)

Select 6 credits of 400-level CRIMJ courses, excluding CRIMJ 495(1-18) (Sem: 7-8)

Last Revised by the Department: Fall Semester 2001

UCA Revision #2: 7/27/07

## English Minor

*Penn State Berks - Christian Weisser, [crw17@psu.edu](mailto:crw17@psu.edu)*

*Penn State Erie, The Behrend College (ELISH)*

*Contact: Craig Warren, [caw43@psu.edu](mailto: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

## Entrepreneurship and Innovation Minor

*Intercollege Program (ENTI)*

*Penn State Abington - Gary Calore ([gsc1@psu.edu](mailto:gsc1@psu.edu))*

*Penn State Berks - Dr. Sadan Kulturel-Konak ([sxk70@psu.edu](mailto:sxk70@psu.edu))*

*University Park - Dr. Anne Hoag ([amh13@psu.edu](mailto:amh13@psu.edu))*

*University College - Lehigh Valley - Denis Ogden ([dto2@psu.edu](mailto:dto2@psu.edu))*

Skills attributed to entrepreneurial behavior and innovative thinking are beneficial for students in most if not all majors, and are critical to career success in established companies and new organizations to address pressing needs around the globe. This interdisciplinary minor uses problem-based learning pedagogy to prepare students to create value and be agents of positive change in their discipline and their careers. The courses develop skills in problem solving, opportunity recognition, self-efficacy, leadership, communications and learning from failure. To meet the students' broad range of entrepreneurship and innovation interests, core courses (9 credits) establish foundational knowledge, and then students select a concentration cluster aligned to specific contexts such as entrepreneurship in food, technology, art, journalism, or internet. Students who complete the ENTI minor will be better prepared to be innovation leaders in their chosen career path, such as being entrepreneurial in an existing company (intrapreneurship), engaging in a start-up venture full or part-time, finding avenues to leverage their art or craft, or creating alliances to meet social or business needs.

Advising for students in this minor and approval of curriculum exceptions will be available through the Entrepreneurship and Innovation (ENTI) Adviser for each cluster.

**Arts Cluster** [*College of Arts and Architecture*]

This specialization prepares students for entrepreneurial action in an arts context. To "entrepreneur" in the arts, one must understand aesthetic value and what drives people to consume aesthetic products. By learning how various arts markets view and consume art, emerging arts entrepreneurs envision "products" with specific markets in mind and craft marketing strategies to communicate aesthetic value to audiences. Upon learning how the non-profit and for-profit arts ecologies operate, students envision and develop their arts career and venture within the context, tying together the aesthetic and cultural value of their art form with the business acumen necessary to launch and sustain an entrepreneurial arts enterprise.

**Digital Entrepreneurship and Innovation Cluster** [*College of Information Sciences and Technology*]

This specialization prepares a student to harness digital technologies and digital business models to develop their own concepts into commercial concerns or to contribute to the innovation activities of existing organizations (i.e., intrapreneurship). The IST Digital Entrepreneurship & Innovation cluster focuses on the impact of Information Technology (IT)-driven innovation across multiple industry sectors including for-profit, non-profit and governmental organizations. IT-driven innovation has created new business opportunities for both entrepreneurs and intrapreneurs and is key to increasing efficiencies and expanding the linkage between user-centric products and services. Students who complete this cluster will gain a foundational understanding of emerging information technologies, the components of digital business models, and implementation and design techniques that meet or exceed user-centric requirements.

**Food and Bio-innovation Cluster** [*College of Agricultural Sciences* ]

This specialization will develop future entrepreneurs and innovators to address opportunities and challenges in the agriculture and life sciences space. The cluster focuses on the cornerstone challenge for agriculture: producing food for the world with entrepreneurial activity and innovation to develop, convert and use biological materials and natural resources (plants, animals, ecosystems and organisms, etc.) to meet the material and energy needs of society. Students are encouraged to take a series of courses in the cluster that complement their personal venture interests and engage in a series of immersive venturing experiences that can range from creating new ventures to mentoring with seasoned entrepreneurs or working within entrepreneurial organizations.

**Hospitality Management Cluster** [*College of Health and Human Development*]

This specialization prepares a student to create and develop novel but sound entrepreneurial concepts related to the hospitality industry in such businesses as lodging and food service. For example, through this cluster, students could develop and refine entrepreneurial concepts related to hotels, motels, bed & breakfasts, quick-service restaurants, upscale restaurants, mobile dining such as food trucks, on-line travel agencies, and other on-line ventures. The minor is also designed to prepare students to be innovators within existing organizations. Students who complete this cluster develop skills in creating business plans, feasibility studies, competitive analysis, supply and demand analysis, market analysis and financial forecasting. Students in this concentration are expected to include a mix of majors, not only students majoring in hospitality management.

**New Media Cluster** [*College of Communications*]

This specialization examines opportunities and challenges in the creation and distribution of news, entertainment and information. The same technological innovations that make it easy to start a media enterprise have introduced a host of editorial and business

complexities. Media production and distribution skills and knowledge of media business, technologies, law and ethics are critical.

**New Ventures Cluster** [*Smeal College of Business*]

This specialization helps students develop the skills and ways of thinking required to create, develop, innovate and manage entrepreneurial companies. Students learn about acquiring and balancing limited resources, changing business direction quickly, building a coherent team, managing intellectual property, and creating new markets. This cluster develops a wide range of managerial skills not usually demanded in one person within a larger organization.

**Social Entrepreneurship Cluster** [*College of Engineering*]

This specialization focuses on creating sustainable social impact within marginalized communities. The cluster grounds students in social business, user-centered design for extreme affordability, systems thinking and scholarly research to develop innovative and appropriate technology-based solutions to address compelling global challenges. Travel and fieldwork in which students work in multidisciplinary teams to research, design, test, and commercialize ventures are required.

**Technology Based Entrepreneurship Cluster** [*College of Engineering*]

This specialization develops skills and knowledge through a practical entrepreneurial experience in a technology based environment. Technology and engineering design topics form the practical content of the cluster. General entrepreneurial business topics and tracking current and emerging technologies provide additional foundation structure for this cluster. Students understand and apply fundamental engineering design skills, product feasibility analysis and marketing techniques to move innovative products toward commercialization.

A grade of C or better is required for all courses in the minor.

*Scheduling Recommendation by Semester Standing is given as (Sem:1-2)*

**REQUIREMENTS FOR THE MINOR:** 18-19 credits, depending on cluster

**REQUIRED COURSES** (9 credits)

MGMT 215(3) (Sem: 1-5)

ENGR 310(3) (Sem: 2-6)

ENGR/IST/MGMT 425(3) (Sem: 4-8)

**ADDITIONAL COURSES**

**Select 9 or more credits from one of the following clusters.**

Students may not use a required course from their major in their chosen cluster. Other courses, such as technical electives, out-of-college electives, and general education courses may be able to be used to meet requirements in major as well as the ENTI Minor. In all clusters, students may substitute up to 3 credits of research topics, internship or independent studies courses focused on relevant entrepreneurship or innovation topics in consultation with an adviser. Each cluster is structured to provide a clear course “path” so any student from any major can complete the cluster and therefore the ENTI minor.

**Arts Cluster**

**Required courses:** AA 322(3), AA 323(3), AA 324(1) in sequence or concurrent, and AA 424(3) (Sem: 1-8)

**Digital Entrepreneurship and Innovation Cluster**

**Required courses:** IST 237(3), IST 337(3), and IST 437(3). (IST 237 is prerequisite for IST 437) (Sem:1-8)

### **Food and Bio-innovation Cluster**

**Select up to 6 credits of the following 200-300 courses in the College of**

**Agricultural Sciences:** ASM 391(2), ASM 392(2), AEE 201(3), AGBM 200(3), AGBM 220(3), AGBM 302(3), AGBM 308(3), AGBM 338(3), ANSC 207(2), ANSC 306(3), ANSC 308(4), ANSC 309(4), ANSC 310(3), ANSC 311(3), ANSC 324(3), ANSC 327(3), ANSC 350(2), CED 375(3), ERM 300(3), FDSC 200(3), FDSC 206(3), FOR 201(3), HORT 250(3) (Sem:1-8)

**Select at least 3 credits of the following 400 level courses in the College of**

**Agricultural Sciences:** AGBM 407(3), AGBM 408(3), AGBM 440(3), AGBM 460(3), ANSC 410(4), ANSC 429(3), ANSC 450(3), CED 417(3), ERM 411(3), ERM 412(3), ERM 413(3), FDSC 411(2), FDSC 417(2), FDSC 430(3), FOR 440(3), HORT 410(3), HORT 450(3), HORT 453(3), HORT 455(3), RSOC 452(3), TURF 436(3), WP 416(3) (Sem:1-8)

### **Hospitality Management Cluster**

Select 3 credits from HM 482(3) or HM 484(3) (Sem: 1-8)

Select 6 credits from the following: HM 413(3), HM 432(3), HM 483(3), HM 496(3) (Sem:1-8)

### **New Media Cluster**

**Select 9 credits from the following area. The course marked with \* must be selected.**

COMM 271(3)\*, COMM 461(3), COMM 481(3), COMM 483(3), COMM 484(3), COMM 490(3), COMM 491(3), COMM 492(3), COMM 493(3) (Sem:1-8)

### **New Ventures Cluster**

**Select 9-10 credits from the following area.** (students may only count one of the following course options BA 241 and BA 242; BA 243, BLAW 243, or BLAW 341 towards the minor): BA 250(3), BA 241(2) and BA 242(2), BA 243(4), BLAW 243(3), BLAW 341(3), MGMT 420(3), MGMT 426(3), MGMT 427(3) (Sem:1-8)

### **Social Entrepreneurship Cluster**

**Required courses to be taken in the following order:** ENGR 451(3), EDSGN 452(2) and EDSGN 453(1) concurrent, EDSGN 454(0.5), and ENGR 455(3) (Sem:1-8)

### **Technology Based Entrepreneurship Cluster**

**Required courses:** ENGR 411(3), ENGR 407(3) in sequence or concurrent, and ENGR 415(3) (Sem:1-8)

Last Revised by the Department: Spring Semester 2014

Blue Sheet Item #: 44-01-089

Review Date: 09/15/2015

## **Global Studies Minor**

*Berks College (GLBST)*

The minor in Global Studies is intended to prepare students from all degree programs within the Berks College (with the exception of the major in Global Studies) to gain a global perspective, which would be useful in a variety of workplace and academic settings. HIST 320W, PL SC 014, and CAS 271 provide the necessary background to help students understand and appreciate broad issues of international concern. A combination of more specific option courses will deepen students' experience of the world and enhance analytical and interpersonal skills. Eighteen credits are required for the minor in Global Studies. All students taking this minor will be required to show a 12-credit-level proficiency in a foreign language.

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:** 18-30 credits

**ADDITIONAL COURSES** (18-30 credits)

**Select 6 credits** from CAS 271 US;IL(3), HIST 320W(3), PLSC 14 GS(3) (Sem: 1-6)

**Select 12 credits** from the following list; at least 6 credits must be at the 400 level:

FR 139 GH;IL(3), GER 100 GH;IL(3), RUS 100 GH;IL(3), SPAN 100(3), SPAN 130 GH;IL(3), SPAN 131 GH;IL(3) or SPAN 131 GH;US;IL(3), SPAN 132 IL(3), UKR 100 GH;IL(3) (Sem: 1-4)  
HIST 179 GH;IL(3), HIST 181 GH;IL(3), HIST 192 GH;IL(3), HIST 467(3), HIST 468(3) (Sem: 1-6)

ENGL 403(3), HIST 488(3), PLSC 412(3) (Sem: 3-6)

HIST 120 GS(3), HIST 175 GH;IL(3), PLSC 413(3), PLSC 454 IL(3) (Sem: 3-8)

HIST 435(3), PLSC 424(3), PLSC 487(3), SPAN 200(3), SPAN 220(3), SPAN 253(3), SPAN 300(3), SPAN 420(3), SPAN 476(3) (Sem: 5-8)

**Foreign Language Requirement:** Proficiency in a single foreign language must be demonstrated by either examination or coursework equivalent to completion of 12 credits of coursework. See the ADMISSION section of the General Information in this Bulletin for the Placement Policy for Penn State Foreign Language Courses (under Opportunities for Credit by Acquisition) (0-12) (Sem: 1-8)

Last Revised by the Department: Fall Semester 2004

Blue Sheet Item #: 32-05-011

Review Date: 10/11/04

UCA Revision #2: 7/27/07

BK

## History Minor (*HIST*)

*Contact: Abington College, Andrew August, [axa24@psu.edu](mailto:axa24@psu.edu); Altoona College, Marc Harris, [mlh6@psu.edu](mailto:mlh6@psu.edu); College of the Liberal Arts, Mike Milligan, [mjm61@psu.edu](mailto:mjm61@psu.edu); Penn State Berks, Randall Fegley, [raf8@psu.edu](mailto:raf8@psu.edu); World Campus*

The minor in history is designed to complement a wide range of social studies and humanities majors by affording students the opportunity to examine change and development in human societies over time. Students are free to select courses in the topics (military history, social history, cultural history, etc.), geographical areas (the United States, Latin America, Europe, Asia, and Africa), and time periods that most suit their needs and interests. The requirements for entering the minor are fifth semester standing (eligible courses taken previously will count toward the minor) and having already declared a major.

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 courses (Sem: 1-8)

Select 6 credits of 400-level HIST courses (Sem: 5-8)

Last Revised by the Department: Fall Semester 2001

## Information Sciences and Technology Minor

Abington College - contact: Joe Oakes, jxo19@psu.edu

Berks College

Capital College

University College: Penn State Beaver, Penn State Brandywine, Penn State Greater Allegheny, Penn State Hazleton, Penn State Lehigh Valley, Penn State New Kensington, Penn State Schuylkill, Penn State Wilkes-Barre, Penn State Worthington Scranton, Penn State York, World Campus

University Park, College of Information Sciences and Technology (IST)

This minor is structured to provide students with the theoretical frameworks and skill sets necessary to compete and be productive in the information technology-intensive global context that defines the new "Information Age." Specifically, the minor will be focused on a program that will build an understanding of core information technologies and related areas of study; will prepare students for the practical application of various information sciences and related technologies; and engage students in sharpening their abilities to think critically and to work in teams. All this will be done with the intent to expose students to the cognitive, social, institutional, and global environments of Information Sciences and Technology and to then apply that knowledge as a supplement to their major.

A grade of C or better is required for all courses in this minor.

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

**REQUIREMENTS FOR THE MINOR:** 18 credits

**PRESCRIBED COURSES** (9 credits)

IST 110 GS(3), IST 210(3), IST 220(3) (Sem 1-6)

**ADDITIONAL COURSES** (9 credits)

Select 3 credits from IST 140(3), IST/COMM 234 GS(3), IST/WMNST 235 US(3), IST 250(3), IST 301(3), or IST 302(3) (Sem 5-8)

Select 6 credits from IST 402(3), IST 431(3), IST 432(3), IST 442 IL(3), IST 445(3), IST 452(3), IST 453(3) (Sem 5-8)

Last Revised by the Department: Spring Semester 2017

Blue Sheet Item #: 45-06-037

Review Date: 4/4/2017

IS

## Kinesiology Minor

*Penn State Berks, Benjamin Infantolino, bwi100@psu.edu*

*University Park, College of Health and Human Development (KINES)*

*Contact: Mark Dyreson, mxd52@psu.edu*

A grade of C or better is required for all courses in the minor.

Students in the Athletic Training Major are not permitted to obtain a Kinesiology Minor.

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

**REQUIREMENTS FOR THE MINOR:** 18-19 credits

**ADDITIONAL COURSES** (6-7 credits)

Select 6-7 credits from KINES 141 US;IL(3), KINES 180(3), and KINES 202(4) (Sem: 1-4)

**SUPPORTING COURSES AND RELATED AREAS** (12 credits)

Select 6 credits of 100-level or higher Kinesiology courses (Sem: 3-6)

Select 6 credits of 400-level Kinesiology courses (Sem: 7-8)

Last Revised by the Department: Summer Session 2007

Blue Sheet Item #: 35-05-114

RT: 41-02 231

Review Date: 3/6/07

HH

## Natural Science Minor (NATSC)

*Contacts: Altoona College, David Hurtubise, [dxh40@psu.edu](mailto:dxh40@psu.edu); Berks College, Ike Shibley, [ias1@psu.edu](mailto:ias1@psu.edu); Eberly College of Science, Ron Markle, [ram29@psu.edu](mailto:ram29@psu.edu)*

This interdepartmental minor in Natural Science is designed for nonscience students who wish to gain a better appreciation for science and the scientific method. The courses required in the minor include 3 to 4 credits of general education science designed for nonscience students, 3 to 4 credits of mathematical science, 8 to 9 credits of life or physical science, including some laboratory work, and 6 credits of 400-level science courses. Certain combinations of courses are disallowed (as listed in the curriculum description), and higher-level courses are generally accepted as substitutes for lower-level courses if both are offered by the same department. Any substitutes for laboratory courses must also be laboratory courses. Advising for students in this minor will be available through the Eberly College of Science Academic Advising Center and approval of curriculum exceptions will be through the faculty committee and professor in charge of the program.

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:** 20-23 credits

**PRESCRIBED COURSE** (1 credit)

SC 400(1) (Sem: 5-8)

**ADDITIONAL COURSES** (14-17 credits)**[62]**

Select 3-4 credits from ASTRO 1 GN(3), ASTRO 10 GN(2) and ASTRO 11 GN(1), BMB 1 GN(3), BISC 1 GN(3), BISC 2 GN(3), BISC 3 GN(3), BISC 4 GN(4), CHEM 1 GN(3), CHEM 3 GN(3), MICRB 106 GN(3) and MICRB 107 GN(1), PHYS 1 GN(3) (Sem: 1-4)



Select 3-4 credits from CMPSC 101 GQ(3), CMPSC 121 GQ(3), CMPSC 201 GQ(3) or CMPSC 202 GQ(3), CMPSC 203 GQ(4), MATH 110 GQ(4), MATH 140 GQ(4), STAT 200 GQ(4), STAT 250 GQ(3) (Sem: 3-6)

Select 8-9 credits from BIOL 11 GN(3) and BIOL 12 GN(1), BIOL 110 GN(4), CHEM 110 GN(3) and CHEM 111 GN(1), CHEM 112 GN(3) and CHEM 113 GN(1), MICRB 201(3) and MICRB 202(2), PHYS 250 GN(4), PHYS 251 GN(4) (Sem: 3-8)

**SUPPORTING COURSES AND RELATED AREAS (5 credits)**

Select 0-2 credits of 496 (independent studies) courses from the Eberly College of Science course offerings (Sem: 5-8)

Select 3-5 credits of 400-level courses (other than independent studies) from the Eberly College of Science course offerings (Sem: 5-8)

**[62]** A student may not use credit for BISC 1 GN(3) or BISC 2 GN(3) along with credit for BIOL 11 GN(3) and BIOL 12 GN(1), or BIOL 110 GN(4); CHEM 1 GN(3) or CHEM 3 GN(3) along with credit for CHEM 110 GN(3) and CHEM 111 GN(1) or CHEM 112 GN(3) and CHEM 113 GN(1); PHYS 1 GN(3) along with credit for PHYS 250 GN(4) or PHYS 251 GN(4); MICRB 106 GN(3) and MICRB 107 GN(1) along with credit for MICRB 201(3) and MICRB 202(2).

Last Revised by the Department: Summer Session 1995

Blue Sheet Item #: 23-04-042

Review Date: 9/13/02

UCA Revision #1: 8/9/06

UCA Revision #2: 7/30/07

## Physics Minor

Eberly College of Science (PHYS)

Contact: Eberly College of Science, Richard Robinett, [rq9@psu.edu](mailto:rq9@psu.edu)

Contact: Behrend College, Bruce Wittmershaus, [bpw2@psu.edu](mailto:bpw2@psu.edu)

Contact: Penn State Berks, Leonard Gamberg, [lpg10@psu.edu](mailto:lpg10@psu.edu)

The Department of Physics offers a minor for students who wish to expand upon their study in this fundamental discipline, beyond the introductory courses (PHYS 211, PHYS 212, PHYS 213, PHYS 214). In addition to an additional course in modern physics (PHYS 237, which includes introductions to relativity and quantum theory, as well as applications), students take two 400-level PHYS courses for a total of 6-8 credits. The Physics minor is useful for students in many STEM disciplines who wish to extend their studies in this fundamental field, as a background for graduate study or work in a variety of technical fields.

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: 29-31 credits**

**PRESCRIBED COURSES (23 credits)**

MATH 140 GQ(4), MATH 141 GQ(4), PHYS 211 GN(4), PHYS 212 GN(4), PHYS 213 GN(2), PHYS 214 GN(2), PHYS 237(3) (Sem: 1-4)

**SUPPORTING COURSES AND RELATED AREAS (6-8 credits)**

Select two 400-level PHYS courses, except PHYS 444(2), 445(1), 446(1), 457(1-3), 457W(3), 494(1), 494H(1), 495(1), 496(1), 496H(1) or 499(1) (Sem: 5-8)

Last Revised by the Department: Spring Semester 2016

Blue Sheet Item #: 44-04-081

Review Date: 1/12/16

UCA Revision #1: 8/31/06

SC

## Political Science Minor (PL SC)

Contact: Altoona College, Dan DiLeo, [dxd22@psu.edu](mailto:dxd22@psu.edu); Capital College, Steve Peterson, [sap12@psu.edu](mailto:sap12@psu.edu); Penn State Berks, Randy Newnham, [ren2@psu.edu](mailto:ren2@psu.edu); Penn State Fayette, Brad Whitsel, [bcw4@psu.edu](mailto:bcw4@psu.edu); College of the Liberal Arts, Suzanna Linn, [sld8@psu.edu](mailto:sld8@psu.edu)

The Political Science minor consists of 18 credits with at least one course in each of the following Political Science areas: American, theory/methodology, comparative, and international relations. Six (6) of these 18 credits must be at the 400 level.

When electing this minor, the student should have junior (fifth-semester) standing. Special attention should be given to the fact that courses used to satisfy general education, degree requirements, electives, and major requirements may also be used to satisfy minor requirements.

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** (18 credits)

Select 18 credits in Political Science (at least 6 credits at the 400 level) (Sem: 3-8)  
Include at least one course in each of the following areas: American, Comparative, International Relations, and Theory

Last Revised by the Department: Fall Semester 1999

Blue Sheet Item #: 28-01-056

Review Date: 11/10/03

LA

## Professional Writing Minor

*Berks College (PWRIT)*

*Penn State Altoona*

*University College, Penn State Hazleton*

The minor in Professional Writing is intended to prepare students from all degree programs within the Berks College (with the exception of the major in Professional Writing) to write effectively in a variety of workplace and academic settings. Theory courses provide the necessary background to help students understand and appreciate the larger issues surrounding the writing and reading of texts. At the same time, practice-oriented courses draw upon the strategies and techniques of practicing writers outside and inside of the University, including workshops, peer conferencing, collaborative writing, portfolio preparation, and internships.

Students may not count courses used to satisfy General Education Writing/Speaking Skills.

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)

ENGL 211W(3) (Sem: 3-6)

**ADDITIONAL COURSES** (15 credits)

Select 15 credits from the following:

CAS 214(3), COMM 260W(3), COMM 320(3), COMM 370(3), ENGL 110(2-6), ENGL 212(3), ENGL 213(3), ENGL 215(3), ENGL 250(3), ENGL 415(3), ENGL 416(3), ENGL 417(3), ENGL 418(3), ENGL 419(3), ENGL 420(3), ENGL 421(3), ENGL 471(3), ENGL 472(3), ENGL 473(3), ENGL 474(3), ENGL 480(3), ENGL 491(3), ENGL 495(3), ENGL 497(3) (Sem: 3-8)

Last Revised by the Department: Fall Semester 2011

Blue Sheet Item #: 40-04-021

Review Date: 01/10/2012

BK

## Psychology Minor (PSY)

*Contact: Abington College, Michael Bernstein, [mjb70@psu.edu](mailto:mjb70@psu.edu); Altoona College, Brad Pinter, [tbp1@psu.edu](mailto:tbp1@psu.edu); Capital College, Cobi Micahel, [cmk292@psu.edu](mailto:cmk292@psu.edu); Penn State Beaver, Kevin Bennett, [klb48@psu.edu](mailto:klb48@psu.edu); Penn State Berks, Erin Johnson, [eem139@psu.edu](mailto:eem139@psu.edu); Penn State Brandywine, Pauline Guerin, [pbg12@psu.edu](mailto:pbg12@psu.edu); Penn State Fayette, Russ Filburn, [frf1@psu.edu](mailto:frf1@psu.edu); Penn State Greater Allegheny, Eilizabeth Mazur, [exm32@psu.edu](mailto:exm32@psu.edu); Penn State Lehigh Valley, Kevin Kelley, [kjk13@psu.edu](mailto:kjk13@psu.edu); Penn State New Kensington, K. R. Bridges, [krb3@psu.edu](mailto:krb3@psu.edu); Penn State Schuylkill, Helen Hendy, [hl4@psu.edu](mailto:hl4@psu.edu); College of the Liberal Arts, Richard Carlson, [cvy@psu.edu](mailto:cvy@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. The content domains from which students may select courses include biological, clinical, cognitive, developmental, industrial-organizational, and social psychology. Students may choose courses that emphasize theory or application of psychological principles. A number of these courses examine the application of psychological research to societal issues.

The required research methods course, PSYCH 301, carries a statistics prerequisite that

can be met by either PSYCH 200 or STAT 200. STAT 200 does not count toward the minimum 18 credits required for the minor. Students minoring in Psychology at University Park are encouraged to consult the Psychology Advising Center early in the process of planning their minor.

The Psychology minor may be appropriate for students pursuing graduate training or professional careers in fields such as health, business, education, and human services, as well as 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** (7 credits)

PSYCH 100 GS(3), PSYCH 301(4) (Sem: 1-4)

**ADDITIONAL COURSES** (11 credits)

Select 11 credits (at least 6 credits at the 400 level) in PSYCH (Sem: 5-8)

Last Revised by the Department: Fall Semester 2001

Review Date: 12/20/02

UCA Revision #1: 8/14/06

## **Security and Risk Analysis Minor**

*Penn State Abington - contact: Joe Oakes, jxo19@psu.edu*

*Penn State Berks*

*University College: Penn State Beaver, Penn State Mont Alto, Penn State New Kensington,*

*Penn State Worthington Scranton, Galen Grimes, gag5@psu.edu, World Campus*

*University Park, College of Information Sciences and Technology (SRA)*

The minor in Security and Risk Analysis (SRA) is intended to familiarize students with the general frameworks and multidisciplinary theories that define security and related risk analysis. Course work will engage students in the challenges and problems of assuring information confidentiality and integrity (e.g., social, economic, technology, and policy issues) as well as the strengths and weaknesses of various methods for assessing and mitigating associated risk in the students' major field.

The minor provides a grounding in analysis and modeling used in information search, visualization and creative problem solving. This knowledge is set in the context of legal, ethical and regulatory issues of security including analysis of privacy and security law, internal control standards, regulatory policies and basic investigative processes and principles. Such understanding overviews the information technology that plays a critical role in identifying, preventing and responding to security-related events in the student's major field.

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:** 21 credits<sup>[1]</sup>

(At least 6 credits must be at the 400 level.)

**PRESCRIBED COURSES** (9 credits)

SRA 111 GS(3), SRA 211(3), SRA 221(3) (Sem: 1-6)

**ADDITIONAL COURSES** (12 credits)

Select 3 credits from: IST 140(3); CMPSC 101 GQ(3) (Sem: 1-6)

Select 3 credits from: IST 220(3); SRA 231(3) (Sem: 1-6)

Select 6 credits from: IST 432(3), IST 451(3), IST 452(3), IST 453(3), IST 454(3), IST 456(3), SRA 421(3), SRA 468(3), SRA 471(3), SRA 480(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: Spring Semester 2017

Blue Sheet Item #: 45-06-038

Review Date: 4/4/17

IS

## Spanish Minor (SPAN)

Contact: Altoona College, Roselyn Costantino, [rx19@psu.edu](mailto:rx19@psu.edu); Behrend College, Soledad Traverso, [sxt19@psu.edu](mailto:sxt19@psu.edu); Berks College, Rosario Torres, [rzt1@psu.edu](mailto:rzt1@psu.edu); College of the Liberal Arts, Margaret (Peggy) Blue, [mmb21@psu.edu](mailto: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

## Special Education Minor

*Penn State Berks - Carole Roberts, ckr10@psu.edu  
University Park, College of Education (SPLED)*

PROFESSOR Pual Riccomini, *Program Coordinator*  
PROFESSOR Paul Riccomini, *in charge of major*  
PROFESSOR David McNaughton, *in charge of minor*

This minor provides undergraduate students with the opportunity for concentrated work in instructional practices to support the achievement of students with special education needs in general education classrooms. Students will learn strategies for creating a positive classroom environment that will promote student growth and achievement, effective instructional practices for students with special education needs, and techniques for assessing the academic progress of students. The targeted instructional practices have been demonstrated to be effective both with students with and those without special education needs.

The minor in Special Education responds to the growing need to provide appropriate instructional services to students with special education needs in general education classrooms.

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** (12 credits)

EDPSY 14(3) (Sem: 1-4)

SPLED 400(4), SPLED 419(2), SPLED 461(3) (Sem: 5-8)

**ADDITIONAL COURSES** (12 credits)

EDPSY 10 GS(3), HDFS 229 GS(3) or HDFS 239 GS(3) (Sem: 1-4)

SPLED 403A(3) or SPLED 403B(3) (Sem: 5-8)

Select 6 credits from CSD 146 US;IL(3), CSD 218(3), CSD 269 GS;US;IL(3), CSD 300 US;IL(3), RHS 100 GS;US;IL(3), RHS 402(3), or RPTM 277 US(3) (Sem: 5-8)

Last Revised by the Department: Spring Semester 2013

Blue Sheet Item #: 41-05-084

Review Date: 02/19/2013

ED

## Theatre Minor

*Penn State Berks - James Brown, [jnb20@psu.edu](mailto:jnb20@psu.edu)  
University College, Penn State Schuylkill, Penn State York  
University Park, College of Arts and Architecture (THEA)*

The Theatre minor is designed to be an enhancement to a major area of study and/or personal enrichment. The minor should be particularly attractive to students in the humanities (English), communication (Film, Journalism), and the arts (Music, Architecture). The minor may also be attractive to students who need to demonstrate a wide range of interests.

The Theatre minor requirements total 18 credits. Theatre 100 GA;US;IL, a required course in the minor, is an experiential survey of all aspects of the living theatre, as presented by a resident company of theatre artists. Theatre 410, an advanced script analysis course, is also required. Students choose one course from the approved list of theatre history courses and one course from the approved list of design/technical courses. These supporting courses place the literature and aesthetic in historical, social, and political perspective. Students elect 6 theatre credits as additional courses. Typical supporting courses include: Theatre 102 GA, fundamentals of acting; THEA 208 GA;US;IL, Workshop: Theatre in Diverse Cultures; and advanced design or theatre history classes.

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)

THEA 410(3) (Sem: 5-8)

**ADDITIONAL COURSES** (9 credits)

THEA 100 GA;US;IL(3) or THEA 105 GA(3) (Sem: 1-2)

Select 3 credits from THEA 130(3), THEA 131(3), or THEA 150(3) (Sem: 1-4)

Select 3 credits from THEA 401 IL(3), THEA 405 US(3), THEA 408 US(3), THEA 412 US(3), THEA 454(3), THEA 464(3), or THEA 465(3) (Sem: 1-4)

**SUPPORTING COURSES AND RELATED AREAS** (6 credits)

Select 6 credits of THEA courses (Sem: 3-8)

Last Revised by the Department: Fall Semester 2005

Blue Sheet Item #: 33-04-018

Review Date: 5/2/07

AA

## Women's Studies Minor (WMNST)

*Contacts: Abington College, Roy Robson, [rrr5237@psu.edu](mailto:rrr5237@psu.edu); Altoona College, Le Ann De*

Reus, [lad12@psu.edu](mailto:lad12@psu.edu); Penn State Behrend College, Dr. Sarah Whitney, [sew17@psu.edu](mailto:sew17@psu.edu); Berks College, Lauren Jade Martin, [ljm37@psu.edu](mailto:ljm37@psu.edu); Penn State Brandywine, Phyllis Cole, [psc2@psu.edu](mailto:psc2@psu.edu); Penn State DuBois, Jacquelyn Atkins, [jka1@psu.edu](mailto:jka1@psu.edu); Penn State Harrisburg, Katie Robinson, [kdr12@psu.edu](mailto:kdr12@psu.edu); Penn State Mont Alto, Alice Royer, [axr24@psu.edu](mailto:axr24@psu.edu); College of the Liberal Arts, Mindy Boffemmyer, [mub21@psu.edu](mailto:mub21@psu.edu); Penn State York, Dr. Deborah Eicher-Catt, [dle4@psu.edu](mailto:dle4@psu.edu)

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

Blue Sheet Item #: 30-02-008A

Review Date: 6/29/05

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