

University Bulletin

Undergraduate Degree Programs

Primary Navigation

Intercollege Programs

The University offers intercollege undergraduate academic programs in addition to conventional baccalaureate degree programs. The intercollege programs draw on the resources of faculty and courses from several colleges.

See the menus at the left of this page for current offerings.

Baccalaureate Degrees

Bachelor of Philosophy Degree

Intercollege Program (B PH)

OFFICE OF THE VICE PRESIDENT AND DEAN FOR UNDERGRADUATE EDUCATION

The Bachelor of Philosophy degree is designed to allow students to plan their own programs in conjunction with a faculty mentor and is intended for those few students for whom the present degree requirements are restrictive and not responsive to their needs. While the educational goals of most students are adequately met by existing degree programs, those who can demonstrate that the usual requirements of conventional programs prevent them from adequately meeting their goals may apply. An important standard for admission to the Bachelor of Philosophy degree program will be the ability of students to demonstrate that their stated goals are viable and worthy of a college degree.

The faculty mentor is responsible for assisting the student in planning the program and in achieving the proposed goals. The mentor must be able to certify to the Bachelor of Philosophy Degree Committee that the student has achieved the stated goals. The basis of this certification might be a comprehensive examination (written or oral), a written report, a public seminar or performance, or the presentation of a paper to a national meeting of a professional society, etc. A faculty member may serve as mentor for only one student at any given time.

The program is administered by an intercollege committee under the Office of the Vice President and Dean for Undergraduate Education. The Bachelor of Philosophy Degree Committee is responsible for selecting the students and their faculty mentors for the program, annually examining the progress of all students in the program, and approving the completion of the degree based on the certification made by the faculty mentor.

Requirements for Admission

1. An entry interview with the candidate, the faculty mentor, and the members of the Bachelor of Philosophy Degree Committee is required prior to admission to the program. This preliminary interview provides an opportunity for the candidate to discuss and justify the intended use of the Bachelor or Philosophy degree program, and the unique

circumstances that surround the applicant.

2. Second-, third-, and fourth-semester students may apply; those selected will begin their programs the following semester. Exceptions may be approved by the committee.
3. Evidence of successful completion of course work requiring independent research is required. In addition, the committee will consider the applicant's cumulative grade-point average as an index of academic performance and responsibility. Applicants must possess the capability of performing at a **3.0** minimum level.
4. Approval of the student's program by the committee is required.

Requirements for Graduation

1. Satisfactory completion of a program approved by the committee: (a) a minimum of 120 credits to include at least 18 credits at the 400 or 500 level; (b) certification by the faculty mentor; (c) and approval of a capstone, thesis or equivalent, by the faculty mentor.
2. Approval by the committee for graduation following presentation and defense of the capstone, thesis or equivalent.

Last Revised by the Department: Spring Semester 2014

Blue Sheet Item #: 42-05-060

Review Date: 02/25/2014

Last updated: 2/22/10

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

Liberal Arts and Earth and Mineral Sciences Concurrent Degree Program

Liberal Arts and Engineering Concurrent Degree Program

These programs require ten semesters of study, concurrently in the College of the Liberal Arts (during which the student completes 70 credits in General Education and Bachelor of Arts requirements and 33 to 37 basic engineering or science requirements), and in either the College of Earth and Mineral Sciences or the College of Engineering (during which the student completes the credits required in the selected major in Earth and Mineral Sciences or Engineering).

Upon completion of the program, the B.A. in General Arts and Sciences will be awarded by the College of the Liberal Arts and the B.S. by the College of Earth and Mineral Sciences or the College of Engineering. The majors available in the College of Earth and Mineral Sciences are Environmental Systems Engineering, Geosciences, Mining Engineering, Polymer Science, Mineral Economics, Petroleum and Natural Gas Engineering, Ceramic Science and Engineering, Metals Science and Engineering, or Meteorology. The majors available in the College of Engineering are Aerospace, Agricultural, Chemical, Civil, Electrical, Environmental, Industrial and Management Systems, Mechanical, or Nuclear Engineering, or Engineering Science^[44]

To be eligible for this program, a student must file an application for entrance with the associate dean for undergraduate studies, College of the Liberal Arts, not later than the

third semester. Entrance to the program requires that the student satisfy all regular requirements of the College of the Liberal Arts and the College of Earth and Mineral Sciences or the College of Engineering. In addition, special requirements may need to be satisfied when enrollment controls are imposed on programs in any of the colleges because of space limitations. Once a student has met all the requirements for entrance to this program, transfer from the College of the Liberal Arts to the College of Earth and Mineral Sciences or the College of Engineering, with enrollment in one of the majors listed, will be approved automatically at the end of the sixth semester if the student continues to make normal progress toward the concurrent degree and has maintained a cumulative average of 2.00 or higher. Students entering majors in the College of Engineering must complete the following courses with a grade of C or higher: CHEM 110 GN(3) and CHEM 111 GN(1), MATH 140 GQ(4), MATH 141 GQ(4), and PHYS 201 GN(4), and meet the required cumulative grade-point average for the requested engineering major.

Students are advised of the absolute necessity for scheduling classes in exact sequence during the first six semesters of Concurrent Degree study. It is imperative that students obtain, from the Liberal Arts Undergraduate Studies Office, 101 Sparks Building, a copy of the Concurrent Degree requirements worksheet that enumerates the specific course requirements for the two programs for semesters one through six.

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 for General Education in this bulletin.)

FIRST-YEAR SEMINAR:

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

UNITED STATES CULTURES AND INTERNATIONAL CULTURES:

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

WRITING ACROSS THE CURRICULUM:

(Included in 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.)

REQUIREMENTS FOR THE MAJOR: 12 credits

EARTH AND MINERAL SCIENCES OR ENGINEERING COMPONENT: 89-91 credits

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

SEMESTERS ONE THROUGH SIX (33-34 credits)[\[45\]](#)

PRESCRIBED COURSES (27 credits)

CHEM 111 GN(1), CHEM 113 GN(1), MATH 220 GQ(2-3), MATH 230(4), MATH 250(3)
(Sem: 1-4)

EG 10(1), EG 11(1) (Sem: 3-4)

PHYS 201 GN(4), PHYS 202 GN(4) (Sem: 3-6)

EMCH 211(3), EMCH 212(3) (Sem: 5-8)

ADDITIONAL COURSES (6-7 credits)

PHYS 203 GN(3) or PHYS 204 GN(4) (Sem: 3-6)

B.S. requirements **[46]**(3) (Sem: 5-6)

SEMESTERS SEVEN THROUGH TEN (56-57 credits)

Credits required in the selected major in Earth and Mineral Sciences or Engineering (56-57) (Sem: 7-10)

SUPPORTING COURSES AND RELATED AREAS (12 credits)

Select 3 credits from each of the following areas: arts, humanities, science/mathematics, social and behavioral sciences. (Sem: 9-10)

[44] Enrollment in the Engineering Science program is limited to those students attaining an average of B or higher during their first six semesters and to those specially chosen by the College of Engineering faculty on the basis of evidence that they will benefit from the advanced courses.

[45] Concurrent Degree candidates should consult the individual program requirements in the College of Engineering and the College of Earth and Mineral Sciences to ascertain which combinations of CHEM, E G, E MCH, MATH, and PHYS are required.

[46] Concurrent Degree candidates should select a course in this category appropriate for the requirements for their program in either Earth and Mineral Sciences or Engineering.

Last Revised by the Department: Summer Session 1991

Blue Sheet Item #: 16-10-030

Review Date: 5/22/08

UCA Revision #1: 8/8/06

Associate Degrees

Minors

Astrobiology Minor

Intercollege Program (ABIOL)

Astrobiology is the study of life in the universe. Astrobiology has become a major focus of scientific research in the United States and a topic often discussed in popular science literature and the general media. The Astrobiology Minor is designed to educate students in this interdisciplinary field covering the varied scientific disciplines that contribute to our general understanding of life, the origin of life, the past history of life on Earth, possible futures for life on Earth, and the possible existence of life on other planetary environments. The principle goal of the minor is to develop student's literacy in astrobiology so that they can critically evaluate claims related to this field that they encounter well after their college education has ended.

A grade of C or better is required for all courses in the minor.

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

REQUIREMENT FOR THE MINOR: 18 credits with at least 6 credits at the 400 level

PRESCRIBED COURSES (3 credits)

BIOL/GEOSC 474(3) (Sem: 5-8)

ADDITIONAL COURSES (9-10 credits)

EARTH 2 GN(3) or GEOSC 21 GN(3) (Sem: 1-6)
ASTRO 140 GN(3) or ASTRO 291 GN(3)(Sem: 5-8)
GEOSC 204(4) or BIOL 427(3)(Sem: 5-8)

SUPPORTING COURSES AND RELATED AREAS (5-6 credits)

Select 5-6 credits from ASTRO 475(3), BIOL 405(3), BMB 401(3), BMB 402(3), GEOSC 416(3), GEOSC 419(3), METEO 466(3), or MICRB 201(3) (Sem: 5-8)

Last Revised by the Department: Fall Semester 2000

Blue Sheet Item #: 28-07-084A

Review Date: 7/27/05

Bioethics and Medical Humanities Minor

Intercollege Program (BMH)

The tremendous current activity in the biomedical sciences affects both the public and private sectors, including medical care, the pharmaceutical industry, genetics, environmental epidemiology, agricultural science, the insurance industry, occupational health, forensic sciences, and behavioral variation. All these areas go beyond the science itself, with varied impact on people in different age, sex, ethnic, geographic, or economic segments of society. For that reason, life and health sciences research has major social implications that bear on humanities disciplines ranging from ethics and history to religious studies and literature, affecting clinical practice, agricultural practice and research, public policy and private investment. Understanding these issues is important for an informed citizenry. Students electing the BMH minor will start with a basic background of biology coursework, and will take a curriculum that includes 18 credit hours, beginning with an introductory course on basic ideas of bioethics, followed by a choice of other relevant humanities courses, and capped with an integrative course involving original research by the student. The minor will be suitable for students in almost any major, especially students going on to further academic work or careers in health, the life sciences, informatics, forensic or legal professions.

A grade of C or better is required for all courses in the minor.

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

REQUIREMENTS FOR THE MINOR: 18 credits

PRESCRIBED COURSES (6 credits)

BMH 490(3), PHIL 132 GH(3)/RLST 131 GH(3) (Sem: 5-8)

ADDITIONAL COURSES (12 credits)

Select 12 credits, at least 3 credits must be at the 400 level, and one course must be selected from the list of Ethics courses:

Ethics (select at least one course from this group) BBH 301(3), BIOL 461(3), NURS 464 US;IL(3), PHIL 432(3) or STS 432(3), PHIL 498(1-9), WMNST 458 GS(3) (Sem: 5-8)

Humanities CAS 253(3), CAS 453(3), HIST 103 GH;IL(3) (Sem: 5-8)

Other ANTH 470(3), ANTH 471H(3), CSD 269 US;IL(3), FDSC 280 GH(3), HPA 301(3), KINES 345(3), NUTR 430 IL(3), WMNST 250 US(3) (Sem: 5-8)

Last Revised by the Department: Summer Session 2007

Blue Sheet Item #: 35-01-182

Review Date: 8/29/06

Co-chairs added by Publications: 06/06/07

LA

Child Maltreatment and Advocacy Studies Minor

Intercollege Program (CMAS)

Erica Lunkenheimer, Professor-in-Charge,

The Inter-college minor in Child Maltreatment and Advocacy Studies is designed for students who wish to supplement their academic majors with studies in child protection and well-being. The minor provides students with a broad and interdisciplinary introduction to child maltreatment and serves to establish foundational knowledge of the history and etiology of child maltreatment, the structure and administration of child protective service systems, and the identification, investigation, treatment, and prevention of child maltreatment. Students completing this minor will have an understanding of the issues surrounding child maltreatment and advocacy and will be better prepared for professions across a variety of settings that serve children. To meet a diverse range of student interests, four core courses (12 credits) establish foundational knowledge in child maltreatment and advocacy and two elective courses (6 credits) offer opportunities for students to select course options aligned with their professional goals. A capstone course involving field work, research, or other relevant work is required.

For a minor in Child Maltreatment and Advocacy Studies a minimum of 18 credits are required.

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

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

REQUIREMENT FOR THE MINOR: 18 credits

PRESCRIBED COURSES (12 credits)

CMAS 258(3), CMAS 465(3), CMAS 466(3), CMAS 493(1-3)

SUPPORTING COURSES AND RELATED AREAS (5-6 credits)

Select 6 credits from BBH 146 GHA(3), BBH 301(3), BBH 446(3), CNED 422(3), CNED 431(3), CRIM 12 GS(3), CRIM 422(3), CRIM 423(3), CRIM 441(3), EDPSY 10(3), HDFS 129 GS(3), HDFS 229 GS(3), HDFS 239 GS(3), HDFS 432(3), HDFS 453(3), HDFS 455(3), NURS 111(4), NURS 230(4), NURS 245(3), NURS 409(3), PSYCH 270(3), PSYCH 243 GS(3), PSYCH 231 GS(3), PSYCH 436(3), PSYCH 476(3), PSYCH 421, RHS 300(3), RHS 301(3), RHS 401(3), RHS 402(3), RHS 400(3), SOC 5 GS(3), SOC 430(3) (Sem: 5-8)

Last Revised by the Department: Spring 2015

Blue Sheet Item #: 43-06-076A

Review Date: 4/14/2015

Disability Studies Minor

Intercollege Program (DBLTY)

This is an intercollege minor, offered jointly by the College of Engineering and the College of the Liberal Arts, and overseen by the Science, Technology, and Society (STS) Program. It is designed for students with special interests in the social systems, environmental factors, and cultural history of disability. In addition to the requirements of the student's major department, the minor consists of 18 credits selected from several colleges and departments. For those majoring in disability-driven disciplines (e.g. nursing, speech and communication disorders, psychology, special education, rehabilitation and human services, health administration), a Disability Studies minor provides relevant interdisciplinary links that broaden the understanding of disability beyond the clinical realm. For students in the humanities (e.g. history, philosophy, political science, and literature), Disability Studies offers important new dimensions and challenges to traditional accounts of human value and political agency. For students with personal experience of disability, the minor provides an academic grounding and community for disability advocacy on personal, community, and national levels.

A grade of C or better is required for all courses in the minor.

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

REQUIREMENTS FOR THE MINOR: 18 credits

PRESCRIBED COURSES (6 credits)

RHS 100(3), ENGL 228 GH;IL(3) (Sem: 1-6)

ADDITIONAL COURSES (3 credits)

Select 3 credits from LA 495(1-12), or an equivalent independent research course or internship approved by the faculty member in charge.

SUPPORTING COURSES AND RELATED AREAS: (9 credits)

Select at least three courses for at least 9 credits from an approved department list in consultation with adviser.

Last Revised by the Department: Fall Semester 2008

Blue Sheet Item #: 36-06-085

Review Date: 4/15/08

EN/LA

Entrepreneurship and Innovation Minor

Intercollege Program (ENTI)

Penn State Abington - Gary Calore (gsc1@psu.edu)

Penn State Berks - Dr. Sadan Kulturel-Konak (sxk70@psu.edu)

University Park - Dr. Anne Hoag (amh13@psu.edu)

University College - Lehigh Valley - Denis Ogden (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.

Entrepreneurship as Advocacy Cluster *[College of the Liberal Arts]*

This specialization empowers students to utilize the process of entrepreneurship as a form of advocacy to improve the human condition and enhance public life. The cluster leverages a critique of the business paradigm of "maximize shareholder value" to encourage students to create organizations that can be a force for positive change in society.

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

PRESCRIBED 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 (9 credits)

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)

Entrepreneurship as Advocacy Cluster Required Courses

Required Courses: LA 202(3), LA 403(3), LA 424(3) in sequence, LA 403 and LA 424 can be concurrent (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: Fall Semester 2017

Blue Sheet Item #: 46-01-094

Review Date: 8/22/2017

Environmental Inquiry Minor

Intercollege Program (ENV I)

This intercollege minor is designed for students across the disciplines who wish to prepare for addressing environmental issues or problems as professionals or citizens. The minor is available to all undergraduates regularly enrolled in a degree program at the University. The objectives are to allow students to gain the multiple perspectives necessary for understanding environmental issues as well as to increase skills in collaborating with those from very different disciplinary backgrounds to find acceptable solutions. Students will be challenged to move beyond the channels of thinking characteristic of their own discipline to new ways of knowing, new sensitivities, and new analytical approaches. The program will engage students actively in learning experiences outside their major course of study. This minor is intended not to replace existing minors but to be a true intercollege, interdisciplinary minor. A grade of C or better is required for all courses in the minor.

Advising for students in this minor and approval of curriculum exceptions will be available through the Environmental Inquiry Adviser designated within each participating college.

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

REQUIREMENTS FOR THE MINOR: 18-19 credits

ADDITIONAL COURSES (15-16 credits)

Introductory course: The introductory course offers a broad overview of a topic that relates to an environmental theme. It is designed as a preface to learn about the many disciplines and approaches used to study the environment.

Select one course (3-4 credits) from the following list:

AGECO 121 GN(3), ANTH 45 GS;US;IL(3), BISC 3 GN(3), BIOL 120A GN;US;IL(3), BIOL 120B GN;US(3), BIOL 120C GN;IL(3), BIOL 110 GN(4), CED 152(3), ERM 210 GN(3), EARTH 2 GN(3), EARTH 100 GN(3), EARTH 101 GN;US(3), EARTH 111 GN;US(3), EGEE/MATSE 101 GN(3), EGEE 102 GN(3), EMSC/STS 150 GN;IL(3), ENGL 180 GH(3), ENT 202 GN(3), ENVST 100 GS(3), FDSC/STS 105 GHA(3), GEOG 30 GS;IL(3), GEOG 110 GN(3), GEOG 123 GS;IL(3), GEOSC 21 GN(3), GEOSC 40 GN(3), HIST/STS 151 GS;US(3), HORT 101 GN(3), HORT 150 GN(3), INTAG 100 GS;IL(3), MATSE 81 GN;IL(3), PHIL 118 GH(3), PLSC/STS 135 GS(3), RSOC/AGECO 134 GN(3), SOC 23 GS(3), SOILS 71 GN;IL(3), SOILS 101 GN(3), WFS 209 GN(3) (Sem: 1-4)

Cluster course selections: Select 9 credits from one of the following clusters.

(Students may not use a course from their major in their chosen cluster). In all cases/clusters, students may substitute up to 3 credits of research topics, internship, or independent studies courses focused on a relevant environmental topic in consultation with an adviser. (Sem: 1-8)

A. Biodiversity and Ecosystems

This specialization prepares a student to learn about the importance of biodiversity in ecosystems. Over the last 100 years, humans have dramatically reduced the biodiversity

on the earth primarily through loss of habitat. To reduce the pressure on the world's biological resources will take political will, scientific research and creativity in planning. A central focus is on developing effective understanding of land management practices that can enhance the prospects for biological diversity.

BIOL 127(3), BIOL 220W GN(4), BIOL 417(4), BIOL 435(3), BIOL 448(3), BIOL 482(3-4), BIOL 499A(3), CE 370(3), CHEM 20(3), CHEM 301(3), CHEM 402(3), ENT 202 GN(3), FOR 308(3), FOR 401(3), FORT 100(1), GEOG 110 GN(3), GEOG 111 GN(3), GEOG 123 GS;IL(3), GEOG 310W(3), GEOSC 21 GN(3), HORT 101 GN(3), INTAG 100 GS;IL(3), LARCH 341(3), METEO 451(3), PPEM 120 GN(3), STS 201 GN(3), STS/BIOL 424(3), SOILS 101 GN(3), SOILS 412(3), WFS 430(3)/FOR 430(3)

B. Environment and Society

This specialization provides insights into the debates and challenges about the distribution and utilization of the world's environmental resources. All people deserve to live in a safe environment regardless of their income, skin color, religion or gender. Yet, many of the poorest people in the world live in unsafe environmental contexts. Research in many different fields of social science, as well as ethical research, is required to understand how to promote and achieve environmental justice.

AGEC/CEDEV 430(3), ANTH 456(3), CED 152(3), CED 230(3), CED 309(3), CED 410(3), ERM 411(3), CED 201(3), CED 429(3), CED 431W(3), EARTH 101 GN;US(3), EMSC 101 US;IL(3), ECON 428(3), GEOG 124 GS;IL(3), GEOG 438(3), GEOSC 109 GN(3), GEOSC 310(4), GEOSC 402 IL(3), HIST 453(3), INTAG 100 GS;IL(3), MNG 400 IL(3), NUTR/STS 497(3), PHIL 132 GH(3), RSOC 11 GS;US(3), RSOC/AGECO 134 GN(3), STS 201 GN(3), STS 420(3), SOC 423(3), SOC 450(3), SOILS 71 GN;IL(3)

C. Environmental Explorations

This specialization scrutinizes the range of debates, practices and possibilities guiding discussions of how to achieve equitable and sustainable development. Global and national discussions are beginning to probe how we can move toward a future where resources are more effectively utilized and the environment is maintained while achieving well being for the whole world. A cross-disciplinary approach is necessary to promote an understanding of these broad discussions.

Students must take 3 credits each of social science, natural science, and arts and humanities courses:

| Social Science | Natural Science | Arts and Humanities |
|---------------------------------------|--|---------------------------------------|
| CED 201(3) | BIOL 220W GN(4), | AMST 50 GH(3) |
| CED 429(3) | BIOL 427(3) or GEOSC 427(3) | COMM 408(3) or STS 408(3) |
| CED 431W(3) | BIOL 435(3), BIOL 436(3), BIOL 444(3), BIOL 446(3) | COMM 411(3), COMM 459(3) |
| ANTH 40(3), ANTH 146 GS;US(3) | BIOL 450(3-5), BIOL 461(3), BIOL 499A IL(3) | CED 410(3) |
| ANTH 152(3), ANTH 451(3), ANTH 456(3) | CHEM 20(3), CHEM 301(3), CHEM 402(3) | EMSC 150 GN;IL(3) or STS 150 GN;IL(3) |
| CED 410(3) | EMSC 121 GN(3) | ENGL 88 GH(3), ENGL 233 GH;GN(3) |
| ECON 428(3) | EARTH 106 GN(3) | ENGL 402(3), ENGL 404(3), |

| | | |
|---|---|--|
| FDSC 280 GH(3) or PHIL 280 GH(3) | ERM 300(3) | ENGL 430(3) |
| GEOG 20 GS;US;IL(3), GEOG 333(3), GEOG 430(3) | FOR 308(3) | FDSC 280 GH(3) or PHIL 280 GH(3) |
| GEOC 451(3) | GEOG 110 GN(3), GEOG 115 GN(3) | GEOG 434(3), GEOC 310(4) |
| LARCH 65 GA;US;IL(3) | GEOC 10 GN(3), GEOC 20 GN(3), GEOC 303(3) | HIST 428(3) or STS 428(3) |
| NUTR 497(3) or STS 497(3) | GEOC 320(3), GEOC 340(3) | HIST 453(3) |
| PLSC 412(3), PLSC 420(3) | METEO 4 GN(3) | LARCH 60 GA;US;IL(3) |
| RSOC 134 GN(3) or AGECO 134 GN(3) | MNG 400 IL(3) | PHIL 13 GH(3), PHIL 132 GH(3), PHIL 403(3) |
| STS 430 IL(3) or NUTR 430 IL(3) | PPATH 120 GN(3) | RSOC 134 GN(3) or AGECO 134 GN(3) |
| SOC 422(3) | RSOC 134 GN(3) or AGECO 134 GN(3) | SOC 449(3) |
| TURF 425(3) | WFS 408(3), WFS 430(3) or FOR 430(3) | WFS 440(3) |

D. Ideas About the Environment

This specialization engages the philosophical and political challenges underpinning concerns of modern environmentalism. People have always contemplated the meaning of the world around them and the ways in which their reality is shaped by the environment. The meaning and value of the "environment" therefore depends on a person's range of understandings, ideas, and representations about the physical world. To operate effectively, civil society must be based on open discussions including environmental concerns, and this requires basic levels of ecological literacy.

AG 160 GH(3), CED 450 IL(3), BIOL 419 (3), BIOL 438(3), BIOL 461(3), ECON 428(3), EMSC/STS 150 GN;IL(3), ENGL 88 GH(3), ENGL 430(3), ENVE 460(3), FDSC/PHIL 280 GH(3), GEOG 123 GS;IL(3), GEOG 434(3), HIST 110 GH;IL(3), HIST/STS 428 IL(3), HIST 453(3), LARCH 60 GA;US;IL(3), NUTR/STS 497(3), PHIL 403(3), STS 100 GH(3), STS 101 GH(3), SOC 449(3), SOC 450(3), SOILS 71 GN;IL(3)

E. Water Resources

This specialization emphasizes basic literacy required to understand the debates surrounding water as a resource and offers insights into what people can do to protect and maintain its integrity on a worldwide basis. Water and water resources are central to human life, and yet modern industrialization and human settlement patterns are creating untenable competition for water between humans, and other flora and fauna. Basic science is required to ascertain problems of supply. Social science understanding is required to understand challenges facing water supply and utilization and the search for wise utilization of the world's water resources.

ASM 217(3), ASM 327(3), BE 307(3), BIOL 220W GN(4), BIOL 435(3), CE 370(3), CE 371(3), CE 461(3), CE 475(4), ERM/WFS 450(3), EARTH 111 GN;US(3), EMSC 440(3), ENVE 411(3), ENVE 415(3), FOR 470(3), GEOG 431(3), GEOC 40(3), GEOC 440(3), GEOC 445(4),

GEOSC 452(3), METEO 451(3), WFS 422(3), WFS 424(2), WFS/ERM 435(3)

F. Human Settlements

This specialization examines human settlement patterns and their interaction with the environment. Particular emphasis is placed on patterns of development, human movement and migration patterns, as well as environmental impacts. As population increases worldwide, land is increasingly taxed beyond proper capacity. Zoning regulations, suburban sprawl, and uneven settlement that replaces fertile agricultural land have all become major issues within the policy spectrum that must be dealt with to ensure a positive future for the entire world population.

CED 431(3), AMST 50 GH(3), ANTH 45 GS;US;IL(3), ANTH 285 GS;IL(3), ANTH 451(3), ARCH 316 GA(3), BIOL 120A GN;US;IL(3), BIOL 120B GN;US(3), BIOL 120C GN;IL(3), COMM/STS 408(3), COMM 411(3), CED 230(3), CED 309(3), CED 409(3), EARTH 101 GN;US(3), EARTH 106 GN(3), ENGL 88(3), ENGL 402 GH(3), FDSC/PHIL 280 GH(3), GEOG 20 GS;US;IL(3), GEOG 333(3), GEOG 436(3), GEOSC 109 GN(3), LARCH 60 GA;US;IL(3), LARCH 65 GA;US;IL(3), METEO 4 GN(3), MNG 400 IL(3), NUTR/STS 497(3), SOC 449(3), SOILS 71 GN;IL(3), WFS/ERM 450(3), TURF 425(3)

G. Energy Resources

This specialization offers a glimpse into the emerging technology that exists in the energy sector. As the worldwide supply of fossil fuels diminishes, and the demand for those fuels increases, new energy technology must be developed to power our planet. In recent years, energy sustainability and the use of infinite resources have been considered serious options for the first time. Thus, this cluster option employs an interdisciplinary strategy with the goal of educating individuals on a broad-range of emerging technologies in relation to energy resources.

CED 450 IL(3), AGECE/ERRE 201(3), CED 429(3), CED 431(3), EGEE/MATSE 101 GN(3), EGEE 102 GN(3), EGEE 401(3), EGEE 464(3), EMSC 101 US;IL(3), EMSC/STS 150 GN;IL(3), GEOSC 451(3), MATSE 81 GN;IL(3)

Final course: This is the capstone course of the minor which allows students to explore more deeply and recap their study within the minor's curriculum. (Sem: 5-8)

Select one course (3 credits) from the following list:

BIOL 419(3), BIOL 461(3), CED 410(3), ERM 430(3), GEOG 412(3), GEOG 430(3), GEOG 436(3), GEOSC 451(3), MNG 400 IL(3), NUTR/STS 497(3), SOC 422(3), STS 420(3), SOILS 422(3), WFS/FOR 430(3)

SUPPORTING COURSES AND RELATED AREAS (3 credits)

Select one 400-level course (3 credits) from a cluster option other than the one you have chosen. Field experience courses are encouraged. (Sem: 1-8)

Last Revised by the Department: Spring Semester 2009

Blue Sheet Item #: 37-01-043

Review Date: 8/26/08

UCA Revision #1: 8/4/06

UCA Revision #2: 7/27/07

UE

Gerontology Minor

Intercollege Program (GERON)

University College: Penn State Brandywine, Penn State DuBois, Penn State Shenango

*Contact: College of Health and Human Development, Devon M. Thomas,
dmc233@psu.edu*

The intercollege minor in Gerontology is designed for students to gain an in-depth understanding of the aging process and old age. With the growth of the number of older people in the population, increased need has arisen for people with knowledge of the aging process in a variety of professional and occupational roles. In conjunction with the student's major, the minor prepares students for entry-level human service positions working with the elderly, or for graduate or professional school programs including communication disorders, counseling, health planning and administration, medicine, psychology, recreation and park management, and social work where knowledge of the aging process and problems of older people is relevant. Eighteen credits are required for the minor, including at least 6 credits at the 400 level. Advising is available through Mrs. Devon M. Thomas, 315 Health and Human Development Building, University Park, PA 16802 (814-863-8000, dmc233@psu.edu).

A grade of C or better is required for all courses in the minor.

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

REQUIREMENTS FOR THE MINOR: 18 credits

PRESCRIBED COURSES (3 credits)

HDFS 249 GS(3) (Sem: 3-8)

ADDITIONAL COURSES (6 credits)

BIOL 155 GN(3) or SOC 35(3) and SOC 435 (HDFS 434) (3) or HDFS 445 (PSYCH 416) (3) (Sem: 1-7)

SUPPORTING COURSES AND RELATED AREAS (9 credits)

Select 9 credits from: ADTED 460(3), AYFCE/CIED 845(3) (must be approved by the graduate school), BBH 316(3), BBH 410(3), BBH/HPA 440 US;IL(3), BIOL 155 GN(3), CAS 421(3), HPA 101(3), HPA 332(3), HPA 442(3), HDFS 413(3), HDFS 445 (PSYCH 416)(3), HDFS 446(3), HDFS 447(3), HM 306(3), KINES 465(3), KINES 481(3), NURS 115(1), NURS 310(3), NURS 464(3), RM 401(3), SOC 35(3), SOC 423(3), SOC 435(3) (Sem: 3-8)

Note: Students may enroll in special topics courses (297, 497) that focus on aging or old age, with faculty permission. With faculty approval, students may also enroll for independent studies in their major department to write a senior thesis focused on an issue of aging.

Last Revised by the Department: Fall Semester 2016

Blue Sheet Item #: 45-01-004

Review Date: 8/23/16

UCA Revision #1: 8/16/06

UE

Marine Sciences Minor

Contact: Dr. Iliana Baums, ibb3@psu.edu

This program provides an excellent opportunity for undergraduates to pursue their interests in the study of the oceans and make more informed decisions about future graduate studies in marine sciences. Although Penn State does not award degrees in this field, a number of faculty pursue research interests in the marine sciences, and a varied selection of undergraduate courses in the marine sciences is available. The student can either complete the requirements for the minor at University Park (UP) or participate in an intensive semester-long oceanography experience at the Southampton, UK, Oceanography Centre (SOC) through education abroad:

The latter option may be of particular interest to students from non-UP locations. SOC has designed a program for PSU students that provides abundant opportunity to participate in shipboard oceanographic research, including a week of day-cruises in the spring and a 2-week series of cruises in June. Students who elect to pursue that minor at UP have the opportunity to receive training as scientific scuba divers through Penn State's Science Diving Program and participate in a number of other field experiences in the marine sciences.

MARINE SCIENCES MINOR: The Marine Sciences Committee is authorized to award a minor certificate to any undergraduate student regularly enrolled in a degree program at the University who, in addition to satisfying the degree requirements of his or her baccalaureate major, satisfies the requirements for the Marine Sciences minor. The completion of the minor is reflected by a formal notation on the student's official record at the time of graduation.

To enter the program, a student must have attained at least fourth-semester standing, completed CHEM 112, MATH 111 or MATH 141, and BIOL 110 or their equivalents, and have earned a cumulative grade-point average of at least 2.50. To ensure adequate advising and record keeping, the student must apply for the minor in the Marine Sciences program office and must then complete the requirements shown below.

Courses offered by other institutions may be substituted for any of the required courses listed below, if accepted for transfer by the student's major department and approved by the Marine Sciences Committee. This includes up to 16 transfer credits from SOC. Upon completion of the requirements and no later than the tenth week of the semester in which the student is to graduate, he or she must verify in the Marine Sciences program office that the requirements have been met.

In addition to the entrance requirements shown above, there are prerequisite credits required for courses listed under Supporting Courses and Related Areas.

A grade of C or better is required for all courses in the minor.

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

REQUIREMENTS FOR THE MINOR: 19 credits

PRESCRIBED COURSES (3 credits)

GEOSC 40 GN(3) (Sem: 1-4)

SUPPORTING COURSES AND RELATED AREAS (16 credits)

At least 6 credits of field studies from the following list: EARTH 240(3), EMSC 440(3), EMSC 441(4), BIOL 499A IL(3), BIOL 450(3-5), BIOL 482(4), GEOSC 410(3), or BIOL 496(1-6), ERM 496(1-6), GEOSC 496(1-6), METEO 496(1-6) with consent of instructor and Marine Science Minor (Sem: 5-8)

Students may also wish to transfer 6 credits of field-oriented course work from another

institution with prior approval of the chair of the Marine Sciences minor.

Select 10 credits from the following list: BIOL 406(3), BIOL 417(4), GEOSC 410(3), GEOSC 419(3), GEOSC 440(3), METEO 451(3), WFS 435/ERM 435(3), WFS 436/ERM 436(3), WFS 450/ERM 450(3), WFS 452(2), WFS 453(2) (Sem: 5-8)

Last Revised by the Department: Spring Semester 2017

Blue Sheet Item #: 45-05-050C

Review Date: 2/21/17

UCA Revision #1: 8/9/06

UCA Revision #1: 7/27/07

Military Studies Minor (MLTRY)

CHAIR, MILITARY STUDIES INTERDISCIPLINARY COMMITTEE, *in charge*

This interdisciplinary minor is designed for all students with special interests in military and national security affairs. Military emphasis is provided in one of three areas--Aerospace Studies, Military Science, or Naval Science. American military forces have played an important role in our domestic and international history and will continue to have significant involvement in policy arenas relating to national security and international relations. Students elect one military service branch for their prescribed courses and select two additional courses from appropriate history and political science courses emphasizing national security policy. At least 6 credits must be taken at the 400 level.

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

REQUIREMENTS FOR THE MINOR: 24-27 credits

PRESCRIBED COURSES (Choose one service branch--18-20 credits)

AIR FORCE (20 credits)

AIR 151(2), AIR 152(2), AIR 251(2), AIR 252(2), AIR 351(3), AIR 352(3), AIR 451(3), AIR 452(3) (Sem: 1-4)

ARMY (20 credits)

ARMY 101(2), ARMY 102(2), ARMY 203(2), ARMY 204(2), ARMY 301(3), ARMY 302(3), ARMY 401(3), ARMY 402(3) (Sem: 1-7)

MARINES (18 credits)

NAVSC 101(3), NAVSC 204(3), NAVSC 311(3), NAVSC 313(3), NAVSC 402(3), NAVSC 411(3) (Sem: 1-7)

NAVY (21 credits)

NAVSC 101(3), NAVSC 204(3), NAVSC 205(3), NAVSC 322(3), NAVSC 323(3), NAVSC 401(3), NAVSC 402(3) (Sem: 1-7)

ADDITIONAL COURSES (6 credits)

Select 6 credits from the following courses:

HIST 108 GH;IL(3), HIST 120 GS;IL(3), HIST 130 GH;US(3), HIST 142 GS;IL(3), HIST 143 GH;IL(3), HIST 144 US;IL(3), HIST 151 GS;US(3), HIST 160 US(3), HIST 161 US(3), HIST 165 IL(3), HIST 173 GH;IL(3), HIST 175 GH;IL(3), HIST 178 GH;IL(3), HIST 181 GH;IL(3), HIST 192 GH;IL(3), HIST 420 IL(3), HIST 430 IL(3), HIST 434 IL(3), HIST 441 US(3), HIST 444

US(3), HIST 452 US;IL(3), HIST 454 US(3), HIST 473 IL(3) (Sem: 1-2, 7-8)
PLSC 3 GS;IL(3), PLSC 14 GS;IL(3), PLSC 20 GS;IL(3), PLSC 22 GH;IL(3), PLSC 137(3), PLSC 150(3), PLSC 413(3), PLSC 415(3), PLSC 416(3), PLSC 437(3), PLSC 438(3), PLSC 439(3), PLSC 442(3), PLSC 452(3), PLSC 453 IL(3), PLSC 454 IL(3), PLSC 455(3), PLSC 456(3), PLSC 457(3-6), PLSC 458(3-6), PLSC 467(3) (Sem: 1-2, 7-8)

Last Revised by the Department: Fall Semester 2014

Blue Sheet Item #: 43-03-100

Review Date: 11/18/2014

UCA Revision #2: 7/30/07

Neuroscience Minor

Intercollege Program (NEURO)

Contact: Sonia A. Cavigelli, sac34@psu.edu

The intercollege minor in neuroscience is designed for the student desiring an in-depth knowledge about the basic and functional aspects of the nervous system. Students in several disciplines ranging from nutrition to psychology to molecular biology could benefit from comprehensive study of the neurosciences in preparation for technical, professional, or research careers. The neurosciences as envisioned here are broadly based, and instruction available spans the levels of investigation from molecular to behavioral and cognitive. Majors complemented by this minor would include, but not be limited to, psychology, biology, biochemistry, nutrition, human development and family studies, genetics, biobehavioral health, kinesiology, animal and poultry science, and veterinary science.

Only courses in which the student earns a grade of C or better may be counted toward fulfillment of the requirements for the minor.

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

REQUIREMENTS FOR THE MINOR: 18 credits

PRESCRIBED COURSES (9 credits)

PSYCH 260(3) (Sem: 3-4)

BIOL 469(3), BIOL 470(3) (Sem: 5-6)

ADDITIONAL COURSES (9 credits)

Select 9 credits from BBH 410(3), BBH 432(3), BBH 451(3), BBH 497(1-9) (lab), BIOL 471(3), BIOL 472(3), BIOL 473(2), BIOL 479(3), KINES 451(3), KINES 483(3), KINES 484(3), PSYCH 453(3), PSYCH 462(3), PSYCH 475(3), PSYCH 478(3), PTYSC 455(2) (Sem: 5-8)

Last Revised by the Department: Fall Semester 1997

Blue Sheet Item #: 26-01-082

Review Date: 1/30/00

UCA Revision #1: 11/6/06

Contact updated: 9/22/14

**PROGRAM CURRENTLY ON HOLD;
NOT ACCEPTING NEW STUDENTS
Begin Date of Enrollment Hold: March 24, 2011**

Science, Technology, and Society Minor

Intercollege Program (S T S)

This interdisciplinary minor, administered jointly by the College of Engineering and the College of the Liberal Arts, is designed for students in every curriculum at the University. The S T S courses help students integrate their other courses within the framework of the relationships of science, technology, and society. This minor enables students to examine critically the impact of scientific investigation and technological development on society's values, priorities, and institutions, and alternatively the influence human needs have upon scientific and technological activities.

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

PRESCRIBED COURSE (3-6 credits)

S T S 496(3-6) (Sem: 5-8)

SUPPORTING COURSES AND RELATED AREAS (15-18 credits)

Select 9-12 credits from S T S courses (at least 6 credits must be at the 400 level) (Sem: 1-8)

Select 6 credits in consultation with an adviser. These courses may be courses that are also used to fulfill either major or college requirements. (Sem: 1-8)

Last Revised by the Department: Summer Session 1986

Review Date: 6/20/07

EN/LA

Sustainability Leadership

Intercollege Program (SUSLD)

University College, Karen Kackley-Dutt, kek18@psu.edu

The Intercollege Minor in Sustainability Leadership has been designed for students who wish to promote environmental, social, and economic sustainability in their personal and professional lives. Administered by a University-wide faculty committee, the program provides an opportunity for students in any academic major to develop key competencies that will be the foundation for their growth as sustainability leaders in their civic and professional endeavors. Students cultivate these sustainability leadership competencies in the context of thematic tracks that allow them to focus on particular topics within sustainability studies. The competencies cut across all thematic tracks so that all students

in the minor will develop capabilities in: systems thinking; application of sustainability concepts, metrics and analysis; ethics; self-knowledge and leadership; change agency; and collaboration. While these competencies are developed in the context of a specific thematic track, they are transferrable to numerous settings and problems, and graduates of the Sustainability Leadership program will be able to apply them to ethical, social, business and civic issues that they encounter after leaving the University.

All students in the minor are required to take the introductory course, Foundations of Leadership in Sustainability (SUST 200). Within each thematic track, students select twelve credits related to the chosen theme in sustainability leadership. These must include three credits of approved leadership coursework (scholarly explorations of leadership concepts related to the chosen theme) and three credits that offer an immersive experience in sustainability (that is, an opportunity to engage, observe and learn in depth about sustainability challenges and solutions related to the student's chosen theme). The final three credits for each student in the minor is the 400-level Sustainability Leadership Capstone experience. Capstone selection is in consultation with the student's major advisor, the minor advisor or coordinator, and the course instructor. The capstone coursework must be relevant to the chosen theme, must have an approved capstone project that includes scholarly applied or theoretical research on a current issue in sustainability leadership, and must include a critical synthesis of the student's minor curriculum and an articulation of its crosscutting themes.

Design for Sustainable Communities Track

This track allows students to investigate sustainability and leadership in community and urban planning; courses focus on both technical design and community development.

Educating for Sustainability Track

This track provides students with the opportunity to explore a variety of approaches to sustainability education and leadership in sustainability.

Humanistic Understanding of Sustainability Track

Through reading and analysis of significant sustainability-focused texts in philosophy, history, literature, and the social sciences students delve into the evolution and history of thinking on sustainability and leadership in sustainability.

Sustainability and Food Systems Track

Students in this track learn about the nature of food and sustainable food systems, and about sustainability policy and leadership issues related to food, including food security, sustainable production practices, distribution, and safety.

Applicants to the minor present a proposed plan of study for the chosen minor track. The proposed plan of study must be approved by the student's major faculty advisor and by the minor advisor. Entrants to the minor are required to have declared a major field of study.

New Sustainability Leadership minor tracks will be developed over time, and students are encouraged to consult with the minor coordinator early in their program planning, in order to be aware of upcoming additions to the curriculum. In exceptional cases, and by written approval of the program coordinator and major advisor, students may propose a specialized track of their own design.

Students may apply toward the minor no more than six credits from their major requirements and no more than six credits from their other minor requirements. The Sustainability Leadership Capstone credits may not be used simultaneously to fulfill capstone or thesis requirements for any other degree program. All minor programs must

include at least six credits at the 400 level. A grade of C or higher is required for all courses in the minor.

REQUIREMENTS FOR THE MINOR: 18 credits [1]

PRESCRIBED COURSES (3 credits)

SUST 200(3) (Sem: 2-6)

ADDITIONAL COURSES (6 credits)

Take the following 6 credits, or approved substitutions, in consultation with the minor advisor:

SUST 295 or 495, or approved substitution that provides an immersive sustainability experience (3) (Sem: 5-7)

SUST 496 or approved substitution that offers a capstone project in sustainability leadership (3) (Sem: 7-8)

SUPPORTING AND RELATED COURSE AREA (9 credits)

Allowable courses in this area vary by Sustainability Leadership Thematic Track. See Specifics below.

At least three credits from the Additional Courses or the Supporting Courses must be from outside the student's major department.

Requirements for Sustainability Leadership Minor Thematic Tracks

Design for Sustainable Communities Track

(Allowable courses in this area vary by Sustainability Leadership Thematic Track. See specifics below.

Select 6 credits from the following course list, or approved substitutions (6 credits)

CE 410 Sustainable Residential Subdivision (3)

CED 152 Community Development Concepts and Practice (3)

CED 309 Land Use Dynamics (3)

CED 409 Land Use Planning and Procedure (3)

CED 427 Society and Natural Resource (3)

ENVE 460 Environmental Law (3)

GEOG 120 (GS;US;IL) Urban Geography: A Global Perspective (3)

GEOG 429 (US;IL) Geographic Perspectives on Global Urbanization (3)

GEOG 436 Ecology, Economy, and Society (3)

GEOG 439 Property and the Global Environment (3)

LARCH 65 (GA;US;IL) Built Environment and Culture (3)

LARCH 241 Ecological Principles for Landscape (3)

LARCH 311 Design and Theory III: Regional Planning and Landscape Systems (4)

SOILS 422 Natural Resources Conservation and Community Sustainability (3)

Select one of the following leadership courses or approved substitutions, in consultation with the SUSLD advisor (3 credits)

AEE 465 Leadership Practices: Power, Influences, and Impact (3)

ARCH 412 Integrative Energy and Environmental Design (3)

CED 375 Community, Local Knowledge, and Democracy (3)

CEDEV 452 Community Structure, Processes and Capacity (3)

Educating for Sustainability Track

Select 6 credits from the following course list, or approved substitutions (6 credits):

AEE 350 Teaching Methods for Agricultural and Environmental Laboratories (3)

AEE 400 Global Agriculture Education (3)
AEE 412 Methods of Teaching Agriculture and Environmental Science (4)
AEE 450 Program Design and Delivery (3)
EDTHP 435 Child Labor and Education in the Global Economy (3)
EDTHP 440 (CIED 440) Introduction to Philosophy of Education (3)
RPTM 325 Principles of Environmental Interpretation (3)
RPTM 430 Environmental Education Methods and Materials (3)

Select 3 credits from the following leadership courses, or approved substitution, in consultation with the SUSLD advisor (3 credits)

AEE 201 (GS) Interpersonal Skills for Tomorrow's Leaders (3)
AEE 311 Developing Youth Leadership through Organization and Program Structure (3)
AEE 360 Leadership Development for Small Groups (3)
AEE 460 Foundations in Leadership Development (3)
AEE 465 Leadership Practices: Power, Influences, and Impact (3)
EDLDR 409 Leadership Studies in Popular Film (3)
EDLDR 480 Introduction to Educational Leadership (3)
PHIL 119 (GH) Ethical Leadership (3)
RPTM 236 Leadership and Group Dynamics in Recreation Services (3)
SOC 469 Techniques in Small Group Facilitation (1-4)

Humanistic Understanding of Sustainability Track

Select 6 credits from the following courses, or approved substitutions (6 credits):

CMLIT 435 (IL) Cultures of Globalization (3)
CMLIT 455 (IL) Ethics, Justice, and Rights in World Literature (3)
ENGL 180 (GH) Literature and the Natural World (3)
ENGL 181A (GH;US) Adventure Literature: Exploring the Chesapeake Bay (4.5)
ENGL 181B (GH;US) Adventure Literature: Exploring Cape Cod (4.5)
ENGL 181C (GH;US) The Beach: Exploring the Literature of the Atlantic Shore (4.5)
ENGL 181D (GH;US) Adventure Literature: Exploring the Literature of American Wilderness (3)
ENGL 424 Creative Writing and the Natural World (3)
ENGL 430 American Renaissance (3)
HIST 109 (GH;US) Introduction to U.S. Environmental History (3)
HIST 110 (GH;IL) Nature and History (3)
HIST 111 (GH;US) American Food System: History, Technology, and Culture (3)
HIST 151 (GS;US) (STS 151) Technology and Society in American History (3)
HIST 453 American Environmental History (3)
PHIL 13 (GH) Philosophy, Nature, and the Environment (3)
PHIL 118 (GH) Introduction to Environmental Philosophy (3)
PHIL 403 Environmental Ethics (3)

Select 3 credits from the following leadership courses, or approved substitution, in consultation with the SUSLD advisor (3 credits)

CAS 404 Conflict Resolution and Negotiation (3)
CAS 409 (PL SC 409) Democratic Deliberation (3)
PHIL 119 (GH) Ethical Leadership (3)
PLSC 112 (GS) Ethics in Citizenship, Politics, and Government (3)
PUBPL 305 Leadership Studies (3)

Sustainability and Food Systems Track

Select one of the following food/nutrition courses, or approved substitutions (3 credits):

NUTR 251 (GHA) Introductory Principles of Nutrition (3)

FDSC 406 Physiology of Nutrition (3)

Select one of the following food system courses, or approved substitutions (3 credits):

AGBM 102 Economics of Food Systems (3)

AGECO 134 (GN) (R SOC 134) Sustainable Agriculture Science and Policy (3)

AGECO 144 (GN) Principles and Practices of Organic Agriculture (3)

ERM 210 (GN) Environmental Factors and Their Effect on Your Food Supply (3)

HIST 111 (GH; US) (NUTR 111) American Food System: History, Technology, and Culture (3)

NUTR 430 Global Food Strategies: Problems and Prospects for Reducing World Hunger (3)

Select 3 credits from the following leadership courses, or approved substitution, in consultation with the SUSLD advisor (3 credits)

AEE 201 (GS) Interpersonal Skills for Tomorrow's Leaders (3)

AEE 465 Leadership Practices: Power, Influences, and Impact (3)

PHIL 119 (GH) Ethical Leadership (3)

PLSC 112 (GS) Ethics in Citizenship, Politics, and Government (3)

RPTM 236 Leadership and Group Dynamics in Recreation Services (3)

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