COLLEGE OF SCIENCE CORE REQUIREMENTS (Information For Biology Majors)

This list is edited to include only options that will be of interest to most biology majors. The most recent and complete information about Science core requirements is available at:
http://www.science.purdue.edu/Current_Students/curriculum_and_degree_requirements/college-of-science-core-requirements.html

All students who entered Fall 2013 and after must also complete the University Core. Information about the University Core can be found at:
http://www.purdue.edu/provost/initiatives/curriculum/course.html

COMPOSITION AND PRESENTATION

Freshman Composition: All students must complete one of these Freshman Composition options:

- ENGL 10600[1] (First-Year Composition)
- ENGL 10800[1] (Accelerated First-Year Composition)
- HONR 19903 Interdisciplinary Approach to Writing

Technical Writing and Presenting for International Students Only: Students in international or foreign status are required to use a course(s) to meet the TWTP requirement. Approved experiential learning options may not be used by this category of students. **Special Circumstance**: This course-only requirement is waived for international or foreign students from a country whose primary high school/equivalent instruction is in English. Students interested in being approved for a waiver to this course-only requirement are encouraged to speak with their academic advisor.

Technical writing: This requirement can be met by completing one of the following options:

1) Science-based technical communication course:

- CHM 46200 (Intermediate Organic Chemistry)
- COM 21700[1] (Science Writing & Presentation)

2) Other courses may be available (see your advisor for more information)

3) Scholarly publication (any one of the following three) (must follow CoS guidelines – check before writing paper[s])

- **a.** Paper accepted for publication in a peer-reviewed journal or peer-reviewed conference proceedings in which the student is the lead author or has written the large majority of the paper
- **b.** Paper a College of Science faculty member with expertise in the area deems of publishable quality
- **c.** Three approved papers of at least 1,500 words each at least one of which makes a strong or persuasive argument.

Technical presentation: Requirement can be met by completing one of the following options:

1) Science-based technical communication course:

- CHM 46200 (Intermediate and Organic Chemistry)
- COM 21700[1] (Science Writing & Presentation)

2) Other courses may be available (see your advisor for more information)

3) Presentation at a scientific meeting (sole or predominant presenter) (must follow CoS guidelines – check before presentation)

4) Presentation of work at an adjudicated poster session (must follow CoS guidelines – check before presentation)

- **a.** Presentation must be made in the presence of a certified judge
- **b.** Written feedback must be provided to the student

5) Presentation of work during an internship or co-op (must follow CoS guidelines – check before presentation)

6) Three approved 10-minute (or longer) presentations within science course(s) (must follow CoS guidelines – check before presentation)

MATHEMATICS

Students must take a minimum of a one-year sequence of single variable calculus. Options include:

- MA 16010[1] (Applied Calculus I) and MA 16020 (Applied Calculus II) (**Not an option for other CoS majors**)
- MA 16100[1] (Plane Analytic Geometry and Calculus I) and MA 16200 (Plane Analytic Geometry and Calculus II)
- MA 16500[1] (Analytic Geometry and Calculus I) and MA 16600 (Analytic Geometry and Calculus II)

STATISTICS

STAT 50300 (Statistical Methods for Biology) is the required statistics course for Biology majors.

TEAMBUILDING AND COLLABORATION

Students must learn the concepts involved in science team projects --team function, team roles, common goal, and utilizing strengths of team members. Can be met by completing one of the following options:

- BIOL 32800 (Principles of Physiology)
- CS 15800 (C Programming) (fall 2009 to present)
- CS 17700 (Programming w/Multimedia Objects)
- CS 18000 (Problem Solving and Object-Oriented Programming)
- EDCI 49800 (Supervised Teaching Experience)
- PHYS 17200 (Modern Mechanics)
- SCI 36000 (Great Issues in Science & Society)
- ENTR capstone course
- Approved EPICS, Co-op, Internship, or Research Experience
- ROTC
- ENGR 13100 (Engr. Problem Solving & Computer Tools)

COMPUTING

Students must take a course in computing concepts taught using an interpreted or compiled programming language. Course content will include basic control structures and function calls. One of these (or an equivalent course) must be completed:

- CS 15800 (C Programming)
- CS 15900 (Programming Applications for Engineers)
- CS 17700 (Programming With Multimedia Objects)
- CS 18000 (Problem Solving and Object-Oriented Programming)

LABORATORY SCIENCE

Biology students meet this requirement automatically because of the chemistry and physics required of biology majors.

[1]This course may also satisfy a University Core Requirement

LANGUAGE AND CULTURE

All College of Science majors are expected to have an understanding of another culture in addition to their own. This can be demonstrated by completing:

1) 3 courses from option 1; **or**
2) 2 courses from option 1 and 1 additional course from option 2; **or**
3) An approved study abroad experience that satisfies the following:
- **a.** Must be at least one semester in duration and must take place outside the United States.
- **b.** Must consist of taking courses and/or working on a research project.
- **c.** The student must have significant immersion in the local culture and language independent of any US-based program in which the student may be participating.

4) Students whose **native language is not English** may also use demonstrated proficiency in their native language to fulfill this requirement. See advisors for guidelines for demonstrating proficiency.

Language and Culture options

Option 1) Courses in a foreign language, other than your native language. All courses must be in the same language.
Option 2) Courses on culture and/or civilization of a foreign culture or a diversity course. The list of all approved culture/diversity courses can be found at: http://www.science.purdue.edu/Current_Students/all_current_approved_courses.php

GREAT ISSUES:

Great Issues In Science

This requirement addresses the impact of Science on society and the ramifications of scientific advances. The list of approved courses includes:

- BIOL 31200 (Genomics & Society)
- BIOL 48300 (Environmental & Conservation Biology)
- CHM 49000 (History & Philosophy of Science)
- CHM 49000 (Great Issues in Drug Development)
- CHM 49000 (Treating Disease with Chemistry)
- CNIT 49900 (Seminar in Global Policy Issues)
- EAPS 30100 (Oil)
- EAPS 32700 (Climate, Science & Society)
- EAPS 36000 (Great Issues in Science)
- EAPS 37500 (Fossil Fuels, Energy & Society)
- PHYS 31700 (Special Nuclear Materials)
- PHYS 49000 Sustainable Energy Sources

GENERAL EDUCATION: *(University Core requires one Behavioral/Social Science and one Humanities)*

Humanities / Social Sciences And / Or Management

The General Education requirement is met through completion of three courses (9 total credits) that have been approved to meet requirement. Students may take nine credits of Humanities/Social Sciences (A below), or six credits plus three credits from the Management list (B below). Students are encouraged to speak with their academic advisors about course options that may allow them to further an interest or develop a new one while meeting the requirement. The full list of approved courses is available on the CoS web site: http://www.science.purdue.edu/Current_Students/general_education_elective_list.php. Courses NOT on that list cannot be counted without approval.

- **a.** Humanities / Social Sciences (Approved courses in literature, philosophy, history, political science, psychology, sociology, anthropology, interdisciplinary studies, communication, or visual and performing arts.) (6-9 credits)
- **b.** Management (Approved courses in management, economics, or organizational behavior and resource management.) (0-3 credits)

Unacceptable Courses:

Independent research courses are not acceptable. Courses cross-listed with a course in the College of Science or any that have a laboratory or studio component are also not acceptable. In addition, the following specific courses are not acceptable to meet this requirement:

- ANTH 59200 (Advanced Osteology)
- CLCS 23200 (Classical Roots of English Words)
- COM 11400 (Fundamentals of Speech Communication)
- ENGL 23200 (Classical Roots of English Words)
- ENGL 30100 (Ways of Reading)
- HIST 30200 (History of Horticulture)
- HIST 42100 (Honors Historical Methods)
- PHIL 15000 (Principles of Logic)
- PHIL 45000 (Symbolic Logic)
- PHIL 55000 (Advanced Symbolic Logic)
- POL 42900 (Carbon, Climate and Society)
- PSY 20100 (Intro to Statistics in Psychology)
- PSY 20400 (Use of Computers in Psychology)
- PSY 50000 (Statistical Methods Applied to Psychology, Education, and Sociology)
- PSY 50100 (Mathematics Essential for Quantitative Psychology)
- PSY 51200 (Neural Systems)
- SOC 38200 (Introduction to Methods of Social Research
- THTR 13300 (Survey of Acting)

MULTIDISCIPLINARY EXPERIENCE

The multidisciplinary requirement can be met by completing one of the following options:

1) Complete a course or experience which involves a multidisciplinary approach to examining a problem or issue, preferably involving multidisciplinary teams at the junior level or above. Approved choices include:
- Courses from Univ. Core STS list (including BIOL 12100)
- approved research project or internship (must get CoS approval prior to the project/internship)
- Entrepreneurship certificate.
- EPICS (one or more credits)
- BIOL 39500 (Household Biology & Chemistry)
- BIOL 44215 (Multidisciplinary Design of Systems & Devices for Physiological Measurements)
- BIOL 47800 (Introduction to Bioinformatics)
- BIOL 56200 (Neural Systems)
- CHM 59900 (Applied Bioinformatics)
- EDCI 42100 (The Teaching of Biology in Secondary Schools)
- HONR 39900 (Biotechnology: Social & Ethical Issues)
- HONR 39900 (The Science of Uncertainty)
- MA 37300 (Financial Mathematics)
- MA 49000 (Computational Cell Biology)

2) Complete an additional major or minor which gives the student experience in another discipline's approach to examining important problems and issues in that discipline. Such an additional major or minor must require at least 3 courses not required for the student's major.