

Biological Sciences Major

www.biology.pitt.edu

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The biological sciences major is intended for the biology student who wishes to develop an individualized combination of courses at the advanced level. The student is free to plan a curriculum of great breadth or to choose an area of specialization not offered as a major by the department. Most of the undergraduates in our department choose the biological sciences major. This major is suitable for those planning a career in which general familiarity with biological topics is desirable, such as jobs in scientific journalism, biological and pharmaceutical supply industries, biological or medical research, scientific libraries and museums, or in any industry where the products or byproducts have potential biological impact. Completing the biological sciences major fulfills the basic science requirements for admission to medical, dental, and other health professional schools, and to graduate programs in biology.

Required courses for the Biological Sciences major

Biological Science courses

BIOSC 0150 Foundations of Biology 1
BIOSC 0050 Foundations of Biology Lab 1
BIOSC 0160 Foundations of Biology 2
BIOSC 0060 Foundations of Biology Lab 2
BIOSC 0350 Genetics
BIOSC 0370 Ecology **or** 1130 Evolution
BIOSC 1000 Biochemistry*

***Note:** Students may choose the alternate sequence BIOSC 1810 (Macromolecular Structure and Function) **and** 1820 (Metabolic Pathways) in lieu of BIOSC 1000. In this case, students take twelve (12) BIOSC elective credits rather than fifteen (15) as specified in *elective courses*.

Chemistry courses

CHEM 0110 General Chemistry 1
CHEM 0120 General Chemistry 2
CHEM 0310 Organic Chemistry 1
CHEM 0320 Organic Chemistry 2
CHEM 0345 Organic Chemistry Lab

Mathematics courses

MATH 0220 Analytic Geometry and Calculus 1
MATH 0230 Analytic Geometry and Calculus 2 **or**
STAT 1000 Applied Statistical Methods

Physics courses

Choose one of the following pairs

PHYS 0110, PHYS 0111 Introduction to Physics 1, 2 **or**
PHYS 0174, PHYS 0175 Basic Physics for Science &
Engineering 1, 2

Note: While not required for the major, PHYS 0212 Introduction to Laboratory Physics **or** PHYS 0219 Basic Laboratory Physics for Science & Engineering, is useful for graduate study and required for admission to many medical and dental schools.

Elective courses

Fifteen BIOSC credits, which must include at least two lab courses, **or** one lab course and one field course. BIOSC 1690, 1901, 1903, 1904 **do not** count toward these credits.

Note: Any University Honors College (UHC) equivalents to required courses or elective courses are also acceptable.

Course requirements

Higher Level course requirement

Students who declared after September 14, 2009 **MUST** take one higher level BIOSC elective course as part of their 15 credits of BIOSC electives. A higher level course has at least one pre-requisite beyond BIOSC 0160. For example, BIOSC 1320 Population Biology requires BIOSC 0160 and BIOSC 0370 as pre-requisites. Contact a Biology Advisor for a list of higher level courses.

Lab requirement: Students must complete at least two BIOSC labs for the major and at least one of them must be taken at the Pittsburgh Campus. A Pymatuning (PLE) course can count as a lab.

Writing (W) requirement: Students must complete at least one W-course in the major.

Grade requirements

BIOSC courses: Each required BIOSC course for the major must be completed with a grade of C or better. The elective courses for the major must also be completed with a grade of C or better. A minimum GPA of 2.0 in all departmental courses taken is required for graduation. If a C- or lower is earned in an elective course for the major but is not repeated, the course will be used to calculate the departmental GPA but will not be counted toward the 32 credits required for the major.

Co-Requisite courses: Students must also earn a minimum GPA of 2.0 in the co-requisite Chemistry, Mathematics, and Physics courses. A passing grade of C- or lower in a co-requisite course can be accepted, **except** for CHEM 0110 and CHEM 0120, if balanced by a higher grade in another co-requisite course so that the co-requisite GPA is 2.0 or higher. Students **must** pass CHEM 0110 and CHEM 0120 with a grade of **C** (not C-) or better for the major.

Related area: Chemistry satisfies the related area requirement for the Biological Sciences major and the chemistry minor as long as half of the chemistry credits are from the University of Pittsburgh.

Satisfactory/Audit option: One BIOSC course may be taken on an S/NC basis.

Advising: The Biological Sciences Departmental Advisors are available to discuss the major and answer your questions. You are welcome and encouraged to stop by the Biological Sciences Advising Office, A258 Langley Hall, to peruse the handouts or meet with an advisor even before declaring a major. They love visitors! After declaring a major in Biological Sciences, students will officially be advised by the Biological Sciences Advising Office.

Advisors

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Declaring the major: Before students officially declare the Biological Sciences major, they must have completed BIOSC 0150, 0160 and CHEM 0110, 0120 with a grade of C (not C-) or better. Transfer students who have finished these requirements prior to admission to the University of Pittsburgh are asked to complete one term of course work, including at least one BIOSC course that counts toward the major, before declaring.

Other Biological Sciences major options

Bioinformatics
Ecology and Evolution
Microbiology
Molecular Biology

Information about these majors is available in the Biological Sciences Advising Office.

Checklist for the Biological Sciences major

Biological Science courses

_____ BIOSC 0150 **or** 0715
_____ BIOSC 0050 **or** 0057
_____ BIOSC 0160 **or** 0716
_____ BIOSC 0060 **or** 0067
_____ BIOSC 0350 **or** 0355
_____ BIOSC 0370 **or** 1130
_____ BIOSC 1000 **or** 1810 **and** 1820

Chemistry courses

_____ CHEM 0110 **or** 0710
_____ CHEM 0120 **or** 0720
_____ CHEM 0310 **or** 0730
_____ CHEM 0320 **or** 0740
_____ CHEM 0345

Mathematics courses

_____ MATH 0220
_____ MATH 0230 **or** MATH 0235 **or** STAT 1000

Physics courses

_____ PHYS 0110 **or** 0174 **or** 0475
_____ PHYS 0111 **or** 0175 **or** 0476

Elective courses (15 credits)

_____ BIOSC _____
_____ BIOSC _____
_____ BIOSC _____
_____ BIOSC _____ (Higher Level)
_____ BIOSC _____ (Lab Course)
_____ BIOSC _____ (Lab **or** Field Course **or** BIOSC 1545)
_____ BIOSC _____ (Writing-intensive)

Note: Up to six credits of the following approved ANTH and NROSCI courses can be used to satisfy BIOSC elective requirements.

Anthropology

ANTH 1601 Structure and Function
ANTH 1602 Human Skeletal Analysis
ANTH 1603 Human Origins
ANTH 1605 Primate Anatomy
ANTH 1611 Evolutionary Theory

Neuroscience

NROSCI 1000 Introduction to Neuroscience
NROSCI 1012 Neurophysiology
NROSCI 1017 Synaptic Transmission

Note about Physiology: Students may take only **one** of the following courses towards any major in the Biological Sciences Dept.

BIOSC/NROSCI 1070 – UHC Human Physiology
BIOSC/NROSCI 1250 – Human Physiology
BIOSC 1080 – Human Anatomy and Physiology
BIOSC 1870 – Animal Physiology