

Ecology and Evolution Major

www.pitt.edu/~biohome/Dept/Frame/eemajor.htm

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The field of ecology explores the interactive web of organisms and the environment. Studies in evolution consider the processes by which modern organisms have developed from ancestral ones. The ecology and evolution major is a good choice for students interested in the fundamental questions of the evolutionary origins of organisms and how they survive, or don't survive, in their changing habitats. Within this major, students have the opportunity for in depth study of the morphological and physiological adaptations of a variety of animals, plants, and microorganisms to a changing world, the ecological relationships of organisms from the individual to the global scale, and the mechanisms that drive evolutionary change.

Employment opportunities in the ecological sciences have increased greatly in recent years. There continues to be a demand for well trained professionals at all levels (BS, MS, and PhD). Government environmental agencies, commercial consulting and testing firms, waste management industries, research laboratories, and natural history and science museums are just a few of the career opportunities. Graduate departments of ecology, evolution, environmental sciences, genetics, botany, public policy, and public health are actively seeking well qualified students. The required chemistry, physics, and mathematics courses incorporate the requirements for admission to medical, dental, and other health professional schools. An Ecology and Evolution major could also serve as a springboard to a career in law.

Required courses for the Ecology and Evolution major

Biological Science courses

BIOSC 0150, BIOSC 0160 Foundations of Biology 1, 2
BIOSC 0050, BIOSC 0060 Foundations of Biology Lab 1, 2
BIOSC 0350 Genetics
BIOSC 0370 Ecology
BIOSC 0390 Ecology Laboratory
BIOSC 1000 Biochemistry
BIOSC 1130 Evolution
BIOSC 1320 Population Biology
BIOSC 1550 Ecology and Evolution Seminar

Chemistry courses

CHEM 0110, CHEM 0120 General Chemistry 1, 2
CHEM 0310, CHEM 0320 Organic Chemistry 1, 2
CHEM 0330, CHEM 0340 Organic Chemistry Lab 1, 2

Mathematics courses

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

Physics courses

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

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

Elective courses

Seven credits, which must include at least one field course (3 credit minimum) from **Section (a)** taken at the Pymatuning Laboratory of Ecology **or** an equivalent site approved in writing by the Chairman of the Biological Sciences Department **and** the Director of the Pymatuning Laboratory of Ecology.

- a) BIOSC 0740, 1040, 1140, 1160, 1170, 1180, 1190, 1220, 1230, 1260, 1270, 1300, 1330, 1360, 1390, 1410, 1600.
- b) The remaining credits may also come from **Section (a)** **or** from other BIOSC courses above the 1000 level (BIOSC 1690, 1901, 1903, 1904 do **not** count toward these credits); ANTH 1601, 1602, 1603, 1604, 1605, 1606, 1607, 1609, 1611, 1615, 1618; NROSCI 1000, 1012, 1017, 1020, 1045.

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

Grade requirements: 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 overall GPA but will not be counted toward the 32 credits required for the major. 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 if balanced by a higher grade in another co-requisite course so that the co-requisite GPA is 2.0 or higher.

Satisfactory/No Credit option: One BIOSC course may be taken on an S/NC basis.

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

Related area: The chemistry requirements satisfy the related area requirement for the ecology and evolution major and the chemistry minor.

Declaring the major: Before students officially declare the Ecology and Evolution major, they must have completed BIOSC 0150, 0160 and CHEM 0110, 0120 with a grade of 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

Biological Sciences
Microbiology
Molecular Biology

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, A230 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 and register for classes with the Biological Sciences Advising Office.

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Checklist for the Ecology and Evolution major

Biological Science courses

_____ BIOSC 0150 **or** BIOSC 0715
_____ BIOSC 0050
_____ BIOSC 0160 **or** BIOSC 0716
_____ BIOSC 0060
_____ BIOSC 0350 **or** BIOSC 0355
_____ BIOSC 0370
_____ BIOSC 0390
_____ BIOSC 1000
_____ BIOSC 1130
_____ BIOSC 1320
_____ BIOSC 1550

Chemistry courses

_____ CHEM 0110 **or** CHEM 0710
_____ CHEM 0120 **or** CHEM 0720
_____ CHEM 0310 **or** CHEM 0730
_____ CHEM 0330
_____ CHEM 0320 **or** CHEM 0740
_____ CHEM 0340 **or** CHEM 0750

Mathematics courses

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

Physics courses

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

Elective courses

_____ BIOSC _____ (Pymatuning Field Course)
_____ BIOSC _____
_____ BIOSC _____ (W-course)