



# Pitt

Kenneth P. Dietrich  
School of Arts and Sciences

## Ecology and Evolution Major

[www.Biology.Pitt.edu](http://www.Biology.Pitt.edu)

Revised: 05/2019

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 Ecology and Evolutionary Biology 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.

### Requirements for the Ecology and Evolution Major

#### Biological Science Courses

BIOSC 0150 Foundations of Biology 1  
BIOSC 005X Foundations of Biology Lab 1  
BIOSC 0160 Foundations of Biology 2  
BIOSC 006X Foundations of Biology Lab 2  
BIOSC 0350 Genetics  
BIOSC 0370 Ecology  
BIOSC 0390 Ecology Lab  
BIOSC 1000 Biochemistry  
BIOSC 1130 Evolution  
BIOSC 1320 Population Biology  
BIOSC 1550 Ecology and Evolution Seminar  
BIOSC 0391 or BIOSC 1551 (writing course)  
Pymatuning course or approved Field course

#### 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 Introduction to Physics 1  
PHYS 0111 Introduction to Physics 2

PHYS 0174 Basic Physics for Sci. & Engineering 1  
PHYS 0175 Basic Physics for Sci. & Engineering 2

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

#### Elective courses

Six credits, which must include at least one (1) Field Course (3-credit minimum) from Section (a) taken at the Pymatuning Laboratory of Ecology (PLE) or an equivalent site approved in writing by the Director of Undergraduate Programs in the Biological Sciences Department and the Director of PLE.

a) BIOSC 1140, 1160, 1170, 1180, 1190, 1220, 1230, 1270, 1310, 1330, 1340, 1360, 1390, 1400, 1420, 1430, 1610.

Be aware that PLE course offerings change annually, check current schedule.

b) b) The remaining credits may also come from Section (a) or from other BIOSC courses above 1010 (BIOSC 1690, 1900-1907 do not count toward these units); or from ANTH 1601, 1603, 1605; or NROSCI 1000, 1012, 1017.

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

#### Higher-level course requirement

Students must take one higher level BIOSC elective course as part of their 15 credits of BIOSC electives. The higher-level course is automatically satisfied in this major by BIOSC 1130 and 1320.

## 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. BIOSC labs are satisfied in this major by BIOSC 0390 and a Pymatuning course or an approved Field course.

## 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.

## Satisfactory/Audit option

One BIOSC course may be taken on an S/NC basis.

## Advising

The Biological Sciences Departmental Advisors are located in A258 Langley Hall. You are encouraged to stop by to peruse handouts or meet with an advisor even before declaring a major. They love visitors! Students will officially be advised by the Biological Sciences Advising office after declaring a major offered in the department.

## Advisors

### Available year round

Christine Berliner Kevin Wu  
LANGY A258 LANGY A258  
412-624-4819 412-624-4273

### Available during the academic year

Ellen Kelsey Jessica Wandelt Dan Wetzel  
LANGY A258 LANGY A258 LANGY A258  
412-624-0421 412-624-7192 412-648-4286

Advising e-mail: [BioAdv@Pitt.edu](mailto:BioAdv@Pitt.edu)

## 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 (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  
Biological Sciences Computational Biology  
Microbiology Molecular Biology

Information about these majors is available in the Biological Sciences Advising Office in Langley A258.

## Checklist for the Ecology and Evolution major

### Biological Science courses

\_\_\_\_\_ BIOSC 0150 or 0715 (UHC)  
\_\_\_\_\_ BIOSC 005X  
\_\_\_\_\_ BIOSC 0160 or 0716 (UHC)  
\_\_\_\_\_ BIOSC 006X  
\_\_\_\_\_ BIOSC 0350  
\_\_\_\_\_ BIOSC 0370  
\_\_\_\_\_ BIOSC 0390  
\_\_\_\_\_ BIOSC 1000 or (1810 and 1820)  
\_\_\_\_\_ BIOSC 1130  
\_\_\_\_\_ BIOSC 1320  
\_\_\_\_\_ BIOSC 1550  
\_\_\_\_\_ BIOSC 0391 or 1551 (W)

### Chemistry courses

\_\_\_\_\_ CHEM 0110 or 0710 (UHC)  
\_\_\_\_\_ CHEM 0120 or 0720 (UHC)  
\_\_\_\_\_ CHEM 0310 or 0730 (UHC)  
\_\_\_\_\_ CHEM 0320 or 0740 (UHC)  
\_\_\_\_\_ CHEM 0345

### Mathematics courses

\_\_\_\_\_ MATH 0220  
\_\_\_\_\_ MATH 0230 or 0235 or STAT 1000

### Physics courses

\_\_\_\_\_ PHYS 0110 or 0174 or 0475 (UHC)  
\_\_\_\_\_ PHYS 0111 or 0175 or 0476 (UHC)

### Elective courses (6 credits)

\_\_\_\_\_ BIOSC \_\_\_\_\_ (Field Course)  
\_\_\_\_\_ BIOSC \_\_\_\_\_

**Note:** Students may use one of the following courses to satisfy their non-field course elective.

### Anthropology

ANTH 1601 Structure and Function  
ANTH 1603 Human Origins  
ANTH 1605 Primate Anatomy

### Neuroscience

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