Department of Ecology, Evolution, and Organismal Biology

Undergraduate Study

Within the Biological Sciences, studies of ecology, evolution, and organismal biology are essential in understanding the complex relationships of life on Planet Earth. Ecology focuses on the interactions among organisms as well as the interactions between organisms and their physical environments. Evolutionary theory addresses the origins and interrelationships of species. Organismal biology studies both the diversity of biological organisms and the structure and function of individual organisms.

The EEOB Department offers several undergraduate majors with other departments. Students interested in the areas of ecology, evolution, and organismal biology should major in Biology, Environmental Science, or Genetics. The Biology Major is administered and offered jointly by the EEOB and GDCB departments. The faculty of EEOB, together with those in GDCB and BBMB, administer and offer the Genetics Major. Faculty in EEOB, in cooperation with faculty from other departments on campus, administer and offer the Environmental Science Major. Each of these majors is available through the College of Liberal Arts and Sciences or through the College of Agriculture and Life Sciences. Faculty in the EEOB Department also teach undergraduate courses at Iowa Lakeside Laboratory (see the Iowa Lakeside Laboratory listing).

The Biology Major, the Environmental Science Major, and the Genetics Major prepare students for a wide range of careers in biological sciences. Some of these careers include conservation of natural resources and biodiversity, human and veterinary medicine, and life science education. These majors are also excellent preparation for graduate study in systematics, ecology, biological diversity, physiology, and related fields. Faculty members in EEOB contribute to the undergraduate courses listed below. The titles and descriptions of these courses are in the Biology section of the catalog.

BIOL 101 Introductory Biology 3
BIOL 110 Introduction to Biology 1
BIOL 111 Opportunities in Biology 0.5
BIOL 155 Human Biology 3
BIOL 173 Environmental Biology 3
BIOL 204 Biodiversity 2
BIOL 211 Principles of Biology I 3
BIOL 211L Principles of Biology Laboratory I 1
BIOL 212 Principles of Biology II 3
BIOL 212L Principles of Biology Laboratory II 1
BIOL 255 Fundamentals of Human Anatomy 3
BIOL 255L Fundamentals of Human Anatomy Laboratory 1
BIOL 256 Fundamentals of Human Physiology 3
BIOL 256L Fundamentals of Human Physiology Laboratory 1
BIOL 258 Human Reproduction 3
BIOL 307 Women in Science and Engineering 3
BIOL 312 Ecology 4
BIOL 313 Principles of Genetics 3
BIOL 313L Genetics Laboratory 1
BIOL 315 Biological Evolution 3
BIOL 335 Principles of Human and Other Animal Physiology 4
BIOL 336 Ecological and Evolutionary Animal Physiology 3
BIOL 351 Comparative Chordate Anatomy 5
BIOL 352 Vertebrate Histology 4
BIOL 353 Introductory Parasitology 3
BIOL 354 Animal Behavior 3
BIOL 355 Plants and People 3
BIOL 356 Dendrology 4
BIOL 364 Invertebrate Biology 3-4
BIOL 365 Vertebrate Biology 4
BIOL 366 Plant Systematics 4
BIOL 371 Ecological Methods 3
BIOL 381 Environmental Systems I: Introduction to Environmental Systems 3-4
BIOL 382 Environmental Systems II: Analysis of Environmental Systems 3
BIOL 393 North American Field Trips in Biology 1-4
BIOL 394 International Field Trips in Biology 1-4
BIOL 434 Endocrinology 3
BIOL 439 Environmental Physiology 3-4
BIOL 454 Plant Anatomy 4
BIOL 455 Bryophyte and Lichen Biodiversity 3
BIOL 456 Principles of Mycology 3
BIOL 457 Herpetology 2
BIOL 458 Ornithology 2
BIOL 459 Mammalogy 2
BIOL 462 Evolutionary Genetics 3
BIOL 465 Morphometric Analysis 4
BIOL 471 Introductory Conservation Biology 3
BIOL 472 Community Ecology 3
BIOL 474 Plant Ecology 3
BIOL 476 Functional Ecology 3
BIOL 486 Aquatic Ecology 3
BIOL 486L Aquatic Ecology Laboratory 1
BIOL 487 Microbial Ecology 3
BIOL 488 Identification of Aquatic Organisms 1
BIOL 489 Population Ecology 3
BIOL 490 Independent Study 1
BIOL 491 Undergraduate Teaching Experience 1-2
BIOL 494 Biology Internship 1-3
BIOL 495 Undergraduate Seminar 1-3
BIOL 498 Cooperative Education R

Graduate Study

The department offers graduate work leading to both Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees. EEOB graduate students major in one of several interdepartmental majors including Bioinformatics and Computational Biology, Ecology and Evolutionary Biology, Environmental Science, Genetics, Interdisciplinary Graduate Studies, Neuroscience, and Toxicology. The EEOB faculty members are active in the interdepartmental graduate majors and teach a wide range of graduate courses. Faculty research programs cover a wide range of specializations including physiology and physiological ecology; Microbiology; animal behavior; evolutionary genetics of plants and animals; modeling of evolutionary and ecological processes; plant and animal systematics; neurobiology; developmental biology; aquatic and wetland ecology; functional, population, community, landscape, and ecosystem ecology; and conservation biology. For further information on faculty research interests check the EEOB web site (www.eeob.iastate.edu ). Some EEOB faculty teach graduate courses at Iowa Lakeside Laboratory. Field Station courses are also available through the Gulf Coast Marine Laboratory and the Organization for Tropical Studies (see the Biology listing).

Prospective graduate students need a sound background in the physical and biological sciences, as well as in mathematics and English. Interested students should check the Graduate Program link from the EEOB web site for specific admission procedures and updates. The department and majors require submission of Graduate Record Examination (GRE) aptitude test scores. Subject area GRE scores are recommended. International students whose native language is other than English must also submit TOEFL or IELTS scores with their application.

Students who are enrolled in the interdepartmental graduate majors with EEOB affiliation are required to participate in department seminars, to participate in research activities, and to show adequate progress and professional development while pursuing their degree. For both the M.S. and Ph.D. degrees, it is expected that research conducted by the student will culminate in the writing and presentation of a thesis or dissertation. Requirements and guidelines for study are provided by the Graduate College, the EEOB faculty, and the individual student’s major professor and Program of Study Committee. General information about graduate study requirements can be found at the web site for the Graduate College and requirements for the interdepartmental majors can be found by following the links from the EEOB web site above. Although not a formal
requirement, the EEOB faculty recommends that students pursuing the Ph.D. include teaching experience in their graduate training.