

ENVIRONMENTAL BIOLOGY



Aquatic biology students conducting a wetland delineation study in the Trout Run Preserve, Lancaster County, Pa.

WHAT IS ENVIRONMENTAL BIOLOGY?

Environmental biology encompasses the ecological studies of terrestrial and freshwater organisms and their environments. This option involves examining the distribution and abundance of organisms, how organisms interact with each other and with their environment, and how energy is transferred within and through ecosystems. Environmental biologists are committed both to resolving pressing environmental issues and helping society. Students in the environmental biology option are generally passionate about the outdoors and conduct both field and laboratory research studies as they attempt to answer questions concerning applied and theoretical ecological questions. Many environmental biologists ultimately teach at universities, colleges, high schools, museums and nature centers, while others use ecological knowledge to solve environmental problems and manage natural resources for the government, consulting firms and nonprofit organizations.

DEGREES/CONCENTRATIONS

BACHELOR OF SCIENCE (B.S.)

Biology, Environmental Biology Option – Designed to provide students a strong background in basic biology and ecology in preparation of environmental biological careers or graduate studies. Some of the career areas available to environmental biology students include public service or private employment in conservation; environmental management, planning and consulting; pollution abatement; public health; natural resource management; aquatic biology and wildlife biology. Many students in this program complete co-ops and/or independent research projects as part of their education.

MINORS

Students often choose to complete a minor in chemistry but are also encouraged to take advantage of the rich resources and expertise in a wide range of environmental specialties. Rigorous programs and outstanding faculty in meteorology, geology, chemistry, oceanography and geography enhance the strength of our program in environmental biology. The Millersville University Center for Environmental Sciences (MUCES) serves as an organizational framework for all these programs and involves faculty, students and off-campus organizations in partnerships dedicated to research and education on matters relating to the understanding, management and protection of the natural resources of the lower Susquehanna region. The Center administers five interdisciplinary environmental minors in environmental science. For more information, contact Dr. John Wallace, Director of MUCES, at www.millersville.edu/ces.

OVERVIEW

This program combines rigorous training in science with a strong background in the liberal arts. Our goal is to prepare our environmental biology students to meet the challenges of today's world and to be ready for the unknown challenges of the future. The biology faculty at Millersville teach students how to become critical thinkers. We help our students learn to read, write and speak science effectively; become proficient in analyzing and solving problems; and develop the technical expertise they need to become sources of knowledge and skill wanted by employers and society.

COURSES

Our rigorous curriculum in environmental biology is designed to be challenging as well as provide both depth of knowledge in terrestrial and aquatic environmental biology and a solid, broad background in the breadth of biology. Our philosophy is that our students should first be biologists and then specialists. Because biology is a science that is built on our understanding of the physical world as revealed by the physical sciences, this program requires extensive coursework in chemistry, physics and mathematics. For additional information on courses appropriate for this option, consult www.millersville.edu/biologyhandbook.



FACULTY RESEARCH

We strongly believe that scientific research is an extremely valuable experience for students. Therefore, the members of the environmental biology faculty team maintain active, high-caliber research programs specifically geared to the participation and training of undergraduates in both theoretical and applied areas of environmental biology. These activities provide useful training and experience for our students and help keep the faculty at the forefront in helping advance biological knowledge. Ultimately, these research and other scholarly activities aid us in becoming better teachers.

For more information regarding the research performed at Millersville University, please click on the View More button for faculty listed at <https://www.millersville.edu/biology/faculty/index.php>.

FACILITIES

Watershed Education Training Institute (WETI) – Located on a 2.5-acre woodlot on the east side of campus, next to the Conestoga River, the WETI serves as a venue for University outdoor laboratory activities for MU students as well as teachers and visiting classes from Lancaster and neighboring counties. The goal of the institute is to foster watershed stewardship and student/faculty research for the region.

MU Biological Preserve – A living laboratory on campus that provides multiple areas of forest succession from disturbed areas to portions that have 50 years of forest growth. In addition, we have two headwater tributaries that flow through campus and a freshwater pond included in the preserve. For more information, <https://www.millersville.edu/ucm/files/cut-sheets/biology-cutsheet.pdf>

CO-OPS/INTERNSHIPS AND STUDENT RESEARCH

A major strength of our environmental biology program is a balance between solid, basic, “hard science” and work on “real” environmental issues. We provide opportunities to do co-ops and independent research. In recent years, MU environmental biology majors have completed a wide variety of co-op placements, including those at the Stroud Water Research Center, Wetlands Institute, Landstudies Inc., Rettew Associates, Lancaster Labs, several Pennsylvania government agencies (such as the PA Department of Environmental Protection, PA Fish and Boat Commission, PA Game Commission, PA Department of Conservation and Natural Resources, PA Department of Military and Veteran Affairs), at various nonprofits and other organizations. Our students also engage in collaborative research with scientists at various National Science Foundation–funded programs such as those that support research experiences for undergraduates (NSF-REU) from around the country, tropical field stations, Carnegie Museum of Natural History and other institutions.

For more information on internships, please contact Dr. Chris Stieha (christopher.stieha@millersville.edu) and visit the website: <https://www.millersville.edu/elcm/internships/index.php>.

For more information on research, please contact any faculty member listed at <https://www.millersville.edu/biology/student-research.php>.



CAREERS

Our environmental biology graduates have careers in government and the private sector all over the United States. A number have obtained Ph.D.s from prestigious graduate programs in ecology, such as Penn State University, Texas Tech, Rutgers, Michigan State University, Colorado State University, Montana State University, Texas A&M University, North Carolina State University, Virginia Tech, Wake Forest University, William & Mary, and many other very high research activity (R1) universities. Many environmental biology alum who have received Ph.D.s now teach and conduct research at prestigious institutions such as Tufts University, West Virginia University, Wilkes University, the universities of Georgia, Maryland, California (Bakersfield), Central Oklahoma and Virginia and Washington (Seattle), as well as Hampton-Sydney College, Stockton College and Wabash College.

Our environmental biology graduates work as lab and field technicians, environmental consultants, natural resource managers, aquatic biologists, environmental planners, wildlife managers, wetland scientists, foresters, outdoor educators, park naturalists, science specialists, program scientists and professors.

We are proud of our environmental biology graduates and the various career paths they have forged in academia, government and industry. Many of our graduates have become internationally recognized scientists. One graduate is among the leading experts concerning the behavior and conservation of endangered bird species; another is one of the world’s leading experts in the classification of mites. Others are outstanding experts concerning the development of behavior in young primates, the behavioral ecology of crows and jays, landscape ecology of dragonflies and caddisflies, and the ecology and behavior of squirrels.