

# BIOLOGY, ANIMAL BEHAVIOR OPTION



Millersville University offers a B.S. in biology with an option in animal behavior. This option is designed for students who wish to specialize in the study of animal behavior, a science that considers the causes, functions, development, physiological mechanisms and evolutionary history of animal behavior. Students can select coursework that will prepare them for careers working with animals in the context of research, conservation, education, zoos and aquariums, or for graduate programs in research or veterinary medicine.

## DEGREES/CONCENTRATIONS

### BACHELOR OF SCIENCE (B.S.)

**Biology, Animal Behavior Option** – This option offers comprehensive classroom instruction, laboratory training and field experience in all aspects of animal behavior, including classical and applied ethology, behavioral ecology and the physiological basis of behavior. The curriculum provides a strong foundation in biology and includes a variety of courses on the biology of vertebrate and invertebrate animals as well as animal anatomy and physiology to provide well-rounded training for our majors.

Animal Behavior option students can select courses that fit with their interests in animal behavior and support their career goals. For example, students aiming to become a veterinarian can choose courses that provide a strong foundation in animal comparative anatomy and physiology, while others can choose courses that best prepare them for careers in zoos or aquaria, in wildlife management and conservation, or research. Students in this option are advised by professors who are experts in animal behavior, biology and ecology, and who are willing and able to help their advisees follow an appropriate academic path that meets their career goals.

Students can also choose to complete a second option within the biology major, such as the Environmental Biology option, which is ideal for those interested in applying the study of behavior to the management and conservation of wild animals, or the Marine Biology option for those particularly interested in the behavior of marine animals.

### MINORS

Students in the Animal Behavior option may also take advantage of the opportunity to minor in psychology, which is especially appropriate for those interested in applied ethology or experimental psychology.

## OVERVIEW

The Animal Behavior option at Millersville University offers rigorous and engaging classroom instruction in a small-class setting, and opportunities to work with live animals both in the lab and in the field. The curriculum is designed to provide a solid foundation in biology and animal behavior while offering flexibility for students to choose courses that fit their own interests and aspirations. Over the course of their degree, students complete six core courses in biology (required for all biology majors), a foundational course on the Principles of Animal Behavior, a course in either Animal Physiology or the Mechanisms of Animal Behavior, a course in either Behavioral Ecology or Applied Ethology, and upper-level electives in organismal biology, animal anatomy and physiology, conservation biology, or wildlife management.

## CO-OPS AND INTERNSHIPS

In addition to their coursework, students in the Animal Behavior option are required to participate in either independent research with a professor or complete an off-campus internship in animal behavior to gain additional hands-on experience in their field. A wide range of research and internship opportunities are available, and students are provided with guidance and support so they may choose an experience that best meets their own personal interests and goals. These in-depth opportunities give students real-world experiences that solidify their classroom learning and prepare them for careers in animal behavior.



## ABOUT OUR GRADUATES

All graduates of this program will possess a solid foundation in the ethological principles of animal behavior. Students can also receive advanced training in the physiological bases of animal behavior, the evolution of animal behavior in response to ecological pressures, and on the application of animal behavior to working with animals under human management. Our graduates will also gain familiarity with a variety of modern and integrative research approaches used to study animal behavior in the lab and field. Given the strength of our core biology curriculum, all graduates will possess a strong, well-rounded background in biology that will make them competitive for jobs within or outside the animal behavior arena.

## FACILITIES AND EQUIPMENT

Our students benefit from the chance to take a diversity of courses offered at the Chincoteague Bay Field Station in Wallops Island, Virginia. These courses provide unique opportunities to gain field-based training in behavioral ecology, conservation biology, marine biology and more. On campus, professors and students take advantage of the Millersville Biological Preserve, the Roddy Research Pond, the Conestoga River, the Watershed Education Training Institute, a museum collection, and live animal rooms to enrich classroom learning and undergraduate research experiences.

## FACULTY

Animal Behavior faculty are devoted to teaching undergraduates and draw from their diverse and extensive research experience.

**Dr. John Hoover** is a neurobiologist who studies the neural control of movement and behavioral pharmacology in mammals.

**Dr. Brent Horton** is a behavioral and physiological ecologist who studies the hormonal and genetic bases of social behavior in wild birds through field and laboratory studies. He is currently studying social networking in an Amazonian bird species.

**Dr. Isaac Ligocki** is an integrative behavioral biologist who studies the evolutionary and mechanistic bases of social interactions among individuals, including aggression, reproductive behaviors and group formation. Much of his current work involves a variety of fish species.

**Dr. Aaron Haines** is a certified wildlife and conservation biologist who teaches courses in mammalogy, ornithology and conservation biology. His applied research focus attracts many animal behavior students interested in wildlife management and conservation.

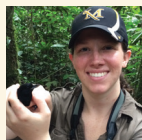
Moreover, there are multiple faculty in the psychology department whose research involves animal behavior, including Dr. Kelly Banna (learning and motivation), Dr. Shawn Gallagher (sensory biology and behavior) and Dr. Debra Vredenburg (animal-human interactions).

To learn more about our biology faculty, go to [www.millersville.edu/biology/faculty](http://www.millersville.edu/biology/faculty).

## STUDENT AND ALUMNI SPOTLIGHTS

### Jennifer Houtz '18

Jennifer is currently working on her Ph.D. in ecology and evolutionary biology at Cornell University. She is studying connections between the gut microbiome and stress-related changes in physiology, behavior and brain development. Jennifer, a first-generation college student who graduated Millersville University with Departmental Honors in biology, is also a Barry Goldwater Scholar, National Science Foundation Graduate Research Fellow, and Cornell University Presidential Life Sciences Fellow.



### Shannon Davis '19

Shannon recently completed the first three years of her DVM studies at the Ross University School of Veterinary Medicine, where she was not only a student, but also a teaching assistant for animal physiology courses! Shannon will be completing her clinicals in veterinary medicine at Oregon State University, a U.S. affiliate of Ross U.

### Lindsay Matter '21

Lindsay is currently pursuing a Doctorate in Veterinary Medicine at the University of Pennsylvania. As an undergraduate, Lindsay conducted research on bird behavior and endocrine disrupting chemicals that involved work in Pennsylvania wetlands and the Amazon. She is also a member of the Manakin Genomics Coordination Network and a coauthor and artist for the "Colorful World of Manakins," a coloring book aimed at educating children about manakin biodiversity.

### Delaney Costante '18

Delaney is currently pursuing a Master of Science in biology at the William & Mary. As an undergraduate, Delaney conducted research on fish behavior and on the environmental and anthropogenic factors that predict population declines for threatened and endangered species.