



think · evolve · act

Biology



The Juniata Advantage

- **Collaborate:** Nearly one-third of Juniata's student body has a Program of Emphasis (POE) that relates to biology—from cell and molecular biology to health professions and environmental science. Brainstorm and research with other top-flight students, in disciplines as diverse as chemistry, math, and history.
- **Use Graduate-Level Facilities:** Enjoy round-the-clock access to laboratory facilities and scientific equipment designed to foster student-faculty collaboration. Some equipment includes: a **state-of-the-art computer cluster for genomic analysis**, a fluorescence scope **for imaging of molecules within cells**, a cell culture facility, scanning electron microscope, and more.
- **Research:** Juniata biology students participate in major research projects as undergraduates. Many students work with faculty at Juniata. Students also intern with biology researchers at other institutions, including MIT, Johns Hopkins, Penn State's College of Medicine at Hershey Medical Center, and the National Institutes of Health. Publish in professional journals and present research at national conferences, regional meetings, and Juniata's Liberal Arts Symposium.
- **Learn to Lead:** The Howard Hughes Medical Institute awarded Juniata one of 47 grants awarded nationally to implement and integrate a **Genomics Leadership Initiative** into the College's curriculum that will combine instruction in science and the humanities, train students in analyses of large genomic data sets, and to integrate across disciplines the ethical, legal, and societal issues of genomics research.

Juniata's Outcomes

Juniata biology students enjoy successful careers in **many areas of biology**. They **enter doctoral programs** at prestigious institutions including Johns Hopkins, Harvard, and UNC Chapel Hill, and undertake **health professions graduate study** and **employment** at places such as The Institute for Genome Research and the National Park Service.

Our Recent Graduates

- Danielle Boothe '15 is currently enrolled in a **Master of Public Health degree program** at Washington University in St. Louis.
- Mitchell Dunklebarger '14 is currently enrolled in the National Institutes of Health Intramural Research Training Award **post-baccalaureate program** at the **National Cancer Institute**.
- Alyssa Grube '14 **participated in a Fulbright program in Chile** where she studied the biodegradation of fracking fluids.
- Erin McClure '13 is currently **enrolled at the University of Maryland** where she is pursuing her doctorate in genomics.
- Mitch Stanton '15 is employed as a **wildlife technician** with the Utah Division of Wildlife, removing invasive species using electrofishing techniques.

"Studying biology has given me the opportunity to perform research, collaborate with other scientists, and present at national conferences. The biology department has not only prepared me for professional school, but has also allowed me to understand how science can impact the world around us."

—Jessica Scales '15

BIOLOGY

A Sampling of Courses

Biochemistry and Molecular Biology
 Biostatistics
 Developmental Biology
 Environmental Toxicology
 General Ecology*
 Invertebrate Zoology*
 Microscopy
 Neurobiology
 Nutrition
 Physiology
 Plant Morphology*
 Reproductive Biology
 Sensory Biology
 Vertebrate Zoology*

*Indicates that the course is accompanied by a laboratory.



A Biology POE Story

Biology is a diverse area of study that requires a strong foundation in mathematics, chemistry, and physics. Our curriculum begins with two introductory courses that cover four basic areas: evolution/ecology, organisms, system interactions, and cell and molecular biology. Two semesters of introductory lab are designed to introduce students to the basics of study in any biological area.

After the introduction, Juniata students focus on inquiry-based learning. They read academic journals exposing them to recent research methods and findings. **Hands-on laboratory experiences** and **independent research** are the norm at Juniata. **Specialize your POE** in cell biology, evolutionary biology, wildlife biology, botany, or many other fields.

In fact, on- and off-campus opportunities are the most pointed-to reason Juniata biology alumni **have earned entry into pre-professional programs for decades**—including medical, dental, optometry, and veterinary schools. And, Juniata's biology research has sent scores of alumni on to graduate school and research careers. In short, biology at Juniata can lead you to a fabulous life cycle. But don't just take our word for it.

"I love that the biology department at Juniata is so expansive and I can take such a wide variety of classes," says James Johnson '16.

Faculty

In the biology department, faculty serve, first and foremost, as professors. Their teaching has been rewarded internally and externally. They have received funding from the National Institutes of Health, the National Science Foundation, the Academy of Sciences' National Research Council, and the Howard Hughes Medical Institute. They have published in journals ranging from *Behavioral Neuroscience and Genetics* to *Undergraduate Education*. To read more about faculty research, visit: www.juniata.edu/academics/departments/biology/faculty.php

Biology Department Chair: Jill Keeney, B.S., Penn State University, Ph.D., Washington University, St. Louis.



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Student Opportunities

Tri-Beta Biology Honor Society: Join the Lambda Epsilon chapter (based on academic achievement) to advocate for continued scholarship, dissemination of scientific knowledge, and promotion of biological research.

Clubs: The Juniata student chapter of the **American Society for Microbiology** sponsors students, speakers, and field trips throughout the year. The chapter provides funding for students to present at the ASM Allegheny Branch meeting in November, where Juniata researchers are well represented among award winners.

Summer Research: Juniata students undertake research projects in many areas of biology throughout the summer. They research on campus and at MIT, University of Iowa, and University of Texas, South Western, as well as national labs.

Undergraduate Research: Juniata biology students have been awarded **Goldwater Scholarships** and **American Physiological Society summer research fellowships**, in addition to many other honors. Here are a few *recent examples* of the research they've presented: Catherine Douds '15, "The Yeast Genome Project: Exploring APD1;" Abigail Rosenberger '15, "Relationship Between Fish Gut Microbial Communities and Environmental Mercury Concentrations."



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