ABOUT THE DEPARTMENT
The study of biology teaches us about the nature of living matter, explains our relationship to the natural world, and provides a solid foundation for careers in biology and related fields.

STUDENT OPPORTUNITIES
Studying biology offers many unique opportunities. We have summer programs for on-campus research and experiences abroad. Many biology students also choose to do off-campus internships that give them additional practical experience. Collaborative research opportunities with the faculty:

• Environmental toxicology and stress responses to DNA damage
• Aquatic ecotoxicology, behavioral effects of environmental pharmaceuticals and toxins
• Behavior, ecology, and trade-offs between predation risk and thermoregulation in birds
• Behavioral, physiological and evolutionary ecology of vertebrates
• Genetic regulation of neuron structure during development
• Impacts of environmental toxins to amphibian populations and communities
• Water microbiology; detection of bacterial pathogens in the environment
• Role of non-coding RNAs in meiosis and cellular aging
• Cellular and molecular physiology of injury and death in the nervous system

THESIS
Biology majors fulfill the requirement for the Senior Capstone Experience in one of two ways—by completing an experimental project or a review of the literature on a topic of interest. Both options are under the direction of a faculty member. Students begin thinking about their SCE well before the senior year.

Summer research opportunities, the senior seminar in the fall semester, and the credit-bearing SCE course in the final semester help guide students through the process.

BIOLOGY MAJOR - AREAS OF EMPHASIS
Students interested in majoring in biology can focus their studies by selecting an areas of emphasis, including:

• Biochemistry, Infectious Disease & Molecular Biology,
• Ecology & Evolution
• Physiology & Organismal Biology.

FACILITIES

• John S. Toll Science Center
• Teaching labs for anatomy, general biology, biochemistry, microbiology, molecular biology and ecology.
• Faculty research labs
• Aquatics lab with fish nursery and holding tanks
• Litrenta Lecture Hall
• McLain Atrium with study alcoves
• Microsuites for cell and tissue culture, histology, and fluorescence microscopy
• Rooftop Greenhouse
• River and Field Campus
• Semans-Griswold Environmental Center - lab on the river

BIOCHEMISTRY & MOLECULAR BIOLOGY MAJOR (BMB)
This is an interdisciplinary major at the interface between Biology and Chemistry. Students will gain a broad foundation in concepts and techniques essential for success between these two disciplines. Completion of the BMB major will prepare students for a variety of career opportunities, including biomedical research, a range of health professions, and post-graduate education. Students majoring in BMB cannot double major or minor in Biology or Chemistry and similarly cannot minor in BMB.
**WHY BIOLOGY AT WASHINGTON COLLEGE?**

1. **You'll gain a greater appreciation of science as a process.**
   The emphasis here is on discovery-based learning, providing the knowledge and skills you’ll need to pursue vocations or advanced degrees in biology-related fields, including biochemistry, ecology, medicine and other health related fields.

2. **You'll find a real sense of community.**
   Small classes are taught in a state-of-the-art facility by professors (not teaching assistants!) who embrace their responsibility to recognize and encourage your potential. Biology students are bright, highly motivated, and high achievers—just like you!

3. **You can conduct significant research.**
   At Washington College, students work in close relationships with their instructors, and many choose to participate in undergraduate research. Whether you choose to stay on campus for our summer undergraduate research program or pursue internship or research positions elsewhere, you’ll get plenty of hands-on lab and field experience.

4. **Our location presents wonderful opportunities.**
   Washington College is just three blocks from one of the most beautiful rivers of the Chesapeake Bay. Students use the Chester River and the surrounding habitats, including the River and Field Campus, as a natural laboratory for scientific investigation and as a place for recreation.

5. **Gain a competitive edge for post-graduate programs with presentations, internships and publications.**
   Our student are invited to present their work at professional conferences, some publish their research in professional journals and many are selected for internships at a broad range of institutions (NOAA, FDA, Children’s National Medical Center, Brandeis University, National Aquarium in Baltimore, and University of Pittsburgh, among others). All this can lead to admission to competitive graduate programs (University of Pennsylvania, University of Wisconsin at Madison, University of Virginia and Northeastern to name a few) and other post-graduate opportunities.

6. **Pre-professional opportunities abound.**
   The faculty members of the College’s Premedical Committee provide guidance and application support to students interested in a career in allopathic (M.D.), osteopathic (D.O.), podiatric, or veterinary medicine; dentistry; or optometry. We also have dual degree arrangements (3:2 nursing and 3:4 pharmacy) with the University of Maryland and provide focused advising for student wishing to pursue allied health careers, including physician assistant, physical therapy and occupational therapy among others. Another opportunity is a dual degree program (4:2) in athletic training with Bridgewater College, VA.

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**Kaitlyn Marino ’19**

*Biology and Psychology  double major*

Kaitlyn arrived at Washington College with the goal of a career in biomedical research. She took advantage of opportunities offered by WC to develop her hands-on research skills and her ability to communicate her research with others. Kaitlyn is now pursuing a Ph.D. in Neuroscience at the University of Wisconsin at Madison, where she will continue her exploration of neurodegenerative disorders that began at Washington College.

During her freshman year, Kaitlyn met Assistant Professor James Windelborn, in whose Toll Science Center research lab she would study over two summers and two academic years. Kaitlyn developed methods for measuring the effects of stroke on memory in zebrafish. She and Professor Windelborn presented their results at the Society for Neuroscience’s Annual Meetings in 2017 and 2018, where she first spoke with representatives from the University of Wisconsin and other graduate programs to which she would apply.

While she was accepted by several programs, Kaitlyn chose Wisconsin in part because of its offer to fully fund her doctoral studies while allowing her to pursue those studies in one of more than 200 neuroscience research laboratories at the university. In her four years at WC, Kaitlyn also competed on our varsity volleyball team, serving as a captain her senior year.