MARINE BIOLOGY

The marine biology program provides students with a foundation in marine biology and prepares students for marine biology–related careers in both the public and private sectors, and for graduate work in marine biology. Millersville’s affiliation with the Chincoteague Bay Field Station at Wallops Island, Virginia, gives students hands-on experience in marine and environmental sciences through intensive three-week summer courses and student-oriented research projects. Students participate in marine-related co-ops, internships or research experiences with faculty members to further develop their marine skills.

DEGREES/CONCENTRATIONS

BACHELOR OF SCIENCE (B.S.)

Biology, Marine Biology Option – The marine biology option offers comprehensive classroom instruction and laboratory and field training in all aspects of marine biology, including the physical factors that drive ecosystems, the communities of organisms found in oceans around the world, and the biology of the fishes, invertebrates, algae and planktonic organisms that inhabit the world’s oceans. On-campus courses are complemented by field courses offered at the Chincoteague Bay Field Station (CBFS) in Wallops Island, Va., and at other field stations throughout the world. Students are strongly encouraged and supported in completing an internship or research experience that matches their individual interests and career aspirations.

MINORS

Many students in the marine biology option take advantage of the opportunity to minor or double-major in ocean sciences and coastal studies. Additionally, many marine biology option students choose to complete a minor in chemistry or environmental chemistry.

OVERVIEW

The option in marine biology is a challenging combination of field and lab-oriented courses in biology, marine biology and oceanography. The degree is a full B.S. in biology that includes foundation courses in chemistry (at least four semesters), physics (at least two semesters) and mathematics (through calculus, plus statistics). In addition to being academically rigorous, this program includes unique and diverse hands-on learning opportunities. Field courses at CBFS engage students in a wide variety of skills and sampling techniques, including trawling, seining, collecting and identifying plankton, and deploying a CTD rosette to take water samples while recording salinity, temperature and depth.

CO-OPS AND INTERSHIPS

Students can also take advantage of the many co-ops and internships that provide them with real-world work experience in marine biological fields as well as opportunities to conduct independent research with their professors. Students who successfully complete this option are well-prepared to compete for jobs and graduate school studies in all areas of biology as well as those specifically in marine biology. Students with an interest in the marine systems that support life in the oceans are encouraged to complete a minor in oceanography.

COURSES

Courses appropriate for this area can be found at www.millersville.edu/biologyhandbook

Field courses offered at the CBFS can be found at www.cbfieldstation.org/college.html
ABOUT OUR GRADUATES
At the successful completion of a B.S. in biology with an option in marine biology, students will be capable of collecting and analyzing physical and biological marine data, set up and maintain marine aquariums, describe the key features of major marine communities, and recognize and identify common marine organisms. In addition, depending on the individual student’s interests, students will develop in-depth knowledge of one or more groups of marine organisms and the ecological processes that support marine communities.

FACILITIES AND EQUIPMENT
Students benefit from participation in field trips and a diversity of field courses through our long-standing association with the Chincoteague Bay Field Station in Wallops Island, Va. The field station provides access to beaches, salt marshes, protected bays and the open ocean, as well as the use of inshore and offshore vessels; classrooms, laboratories and computer facilities; dormitories and a cafeteria.

FACULTY
Principal marine biology faculty at Millersville are world experts in their disciplines:
- **Dr. Jean Boal** (Biology) - learning, cognition and behavior of cephalopods (octopuses, cuttlefishes and squids)
- **Dr. Dominique Didier** (Biology) - morphology, development and phylogeny of chimaeras (ratfishes), which are relatives of sharks.

Oceanography faculty who work closely with marine biology students include the following:
- **Dr. Ajoy Kumar** (Oceanography) - physical oceanographer specializing in the use of satellite imagery to assess ocean temperatures.
- **Dr. Robert Vaillancourt** (Oceanography) - biological oceanographer specializing in phytoplankton and ocean primary productivity.

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PROGRAM HISTORY
Millersville University is widely recognized for its long-standing marine biology program. In 1968, together with two other PASSHE Universities, MU founded what was to become the Chincoteague Bay Field Station in Wallops Island, Va., to support the hands-on education of marine biology students. Currently, the option in marine biology attracts about 20 new students each year.

ALUMNI SPOTLIGHTS
- **Rachel Cashman ‘10**
  Assistant Manager at Bimini Biological Field Station.
- **Marie Collins ‘05**
  Displays Curator, SEA LIFE Aquarium at LEGOLAND California Resort.
- **Justin Hillyard ’12**
  Manager of the Fish Room at That Fish Place, That Pet Place, the largest fish retailer in the U.S.
- **Johanna Holm ’06**
  Recently completed her Ph.D. in marine environmental biology at the University of Southern California. Thesis title: “The microbiome of gorgonian octocorals, Muricea, with a description of a novel, photosynthetic protistan symbiont.”
- **Cory Shank ’05**
  Marine biologist and coral propagation specialist at That Fish Place, That Pet Place, the largest fish retailer in the U.S.
- **Lauren Albright ’08**
  Education Coordinator at the National Aquarium in Baltimore.