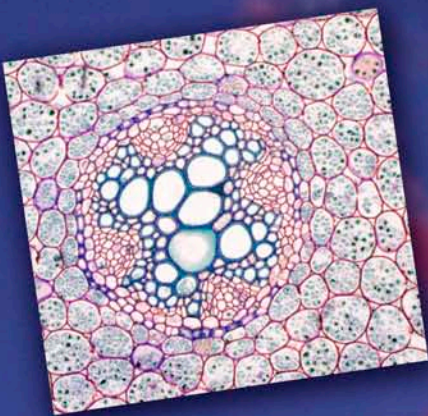


## **COLLEGE OF SCIENCE**

# **Biological Sciences Department**

Did you know that you can apply your studies in biological sciences to innovative and expanding fields in animal behavior, aquatic science, forensic entomology, biotechnology and immunology? These are just a few of the career options offered to students with a degree from Cal Poly Pomona's Biological Sciences Department.





## CAL POLY POMONA'S BIOLOGICAL SCIENCES DEPARTMENT

The Biological Sciences Department incorporates the university's "learn by doing" philosophy in all of its programs—creating curricula that infuse fieldwork, research and laboratory experiences into its teaching and learning environments.



The department offers an undergraduate major in biotechnology, which is one of the few available in California and the only one in the CSU. The department also offers bachelor's degrees in biology, botany, microbiology, zoology, and a new program in environmental biology. Minor degree programs are offered in botany, plant biotechnology, plant pathology, microbiology, and zoology. Interdisciplinary minors are offered in comparative system analysis, environmental health, physiology and quantitative research. A graduate program is offered leading to a Master of Science degree in Biology. The area of specialization is determined on an individual basis.

The Biological Sciences Department offers:

- A wide range of modern facilities, laboratories and technology resources;
- On-site learning centers such as BioTrek;
- Innovative research opportunities in close-to-campus environments and field work abroad;
- Unique laboratory experiences via an on-campus ecological reserve, a nearby desert-studies field station and a sea-going research vessel;
- Versatile curricula combining theory and a broad knowledge base with practical experience;
- Numerous industry internships and research projects; and
- Faculty dedicated to teaching and mentoring.

For more information on admission to Cal Poly Pomona's Biological Sciences department, visit [www.csupomona.edu/admissions](http://www.csupomona.edu/admissions) or call 909/869-3210.



## CURRICULUM

Biological Sciences students participate in broad-ranging programs that reach across disciplines to prepare them for a variety of careers. Biology majors may choose to focus on a specific field of study such as environmental health or physiology. Other students may choose to work toward graduate degrees in medicine, dentistry, optometry or veterinary science.



Biotechnology students apply their degrees to careers ranging from education and applied research to environmental testing and toxicology. The microbiology major offers minors in environmental health, physiology and chemistry. The microbiology program prepares students for careers in food science, industry, medicine and other fields.



Zoology majors will pursue studies in morphology and physiology, evolution, diversity and classification. The zoology program provides strong pre-medical, pre-dental and pre-veterinary preparation as well as numerous laboratory and field-based research opportunities. Students who select the botany major, the only one available in Southern California, prepare for careers in field biology, mycology, pathology, and other specialties.

Undergraduate research opportunities are available in conjunction with national programs such as the McNair Scholars Program and MBRS/RISE (Minority Biomedical Research Support/Research Initiative for Scientific Enhancement), which offers research experience in fields such



as cellular and molecular biology, biochemistry, organic chemistry, nutrition and more. Students are also invited to participate in faculty research projects and are assisted in pursuing internships in industry. The department also offers the opportunity to take classes in the field. Previous classes have taken trips to South and Central America.

## BIOLOGICAL SCIENCES FACILITIES AND LEARNING SITES

### ● BIODIVERSITY COLLECTIONS

Specimen collections are used for teaching and research. They include more than 2,400 amphibian and reptiles; more than 200 birds, a 10,000-plus specimen insect collection; as well as diverse collections of lichens, fishes, fungi, mammals, and vascular plants.



### ● BIOLOGICAL SCIENCES MICROSCOPY FACILITY

The facility includes a digital imaging center, a fluorescence microscopy lab, an ultramicrotomy room, a transmission electron microscope, a scanning electron microscope, and much more. The facility is supported in part by a recent W.M. Keck Foundation grant.



### ● BIOMETRICS LABORATORY

This teaching lab of networked computers is used to introduce students to the statistical analysis of research data.



### ● MOLECULAR BIOLOGY CORE FACILITY

The Molecular Biology Core Facility serves professors and research students in cellular, molecular and developmental biology and microbiology. The facility houses shared state-of-the-art equipment, including a cell sorter, gel imager, gene expression imager, capillary electrophoresis, high performance liquid chromatography, fluorescence microscopes, ultracentrifuges, and incorporates a separate room for tissue culture.



### ● VOORHIS ECOLOGICAL RESERVE

Containing numerous varieties of coastal sage scrub and oak woodland plants and animals, the reserve is located in the northwest part of campus. Several amphibian species, numerous reptiles, dozens of mammals, about 100 birds species and nearly 200 kinds of plants live in the reserve.



### ● BIOTREK

A recent addition to Cal Poly Pomona, BioTrek offers an up-close educational experience for students and the public through its three Rain Bird Learning Centers. A two-story greenhouse is home to a tropical rainforest. An outdoor ethnobotany garden shows what the campus would have looked like when the Tongva were the main inhabitants. An aquatic biology center shows watery environments from mangroves to kelp forests. BioTrek's web site, [www.csupomona.edu/biotrek](http://www.csupomona.edu/biotrek), is sponsored in perpetuity by a gift from the Ernest Prete Jr. Foundation.



### ● UNIQUE FACILITIES

The department's membership in two consortia provide unique opportunities for students:

- The California Desert Studies Consortium at the CSU Desert Research Center, Zyzxx in the Mojave Desert California State University Desert Research Center.
- CSU Ocean Studies Institute on Santa Catalina Island.



*“I owe a great deal to the faculty at Cal Poly Pomona. Their infectious enthusiasm drew me into the exciting world of science. I explored diverse disciplines in biology such as ecology, physiology, histology, entomology and evolution. I developed a rich background in math, computer science, physics and psychology. This broad exposure assured my success as a graduate student, scientist and entrepreneur/business person.”*

*Darryl Ray, 1974, B.S. Biology*



After graduating from Cal Poly Pomona, Darryl Ray went on to UC Santa Barbara, where he received his M.S. and Ph.D. in Cell Biology. He went on to do post-doctoral research at the University of Texas Medical Branch at Galveston, Texas. Dr. Ray worked for a number of scientific instrument companies before co-founding Alpha Innotech Corp., a genomics tool company in the San Francisco Bay Area.



*“At Cal Poly, I learned field techniques that I used in Venezuela to collect research specimens. I am continuing my work at BioTrek, using my knowledge of aquatic and tropical environments. The breadth of knowledge that I gained at Cal Poly Pomona allows me to teach a variety of college-level courses as well as work with children in kindergarten through 12th grade.”*

*Diane Morales, 2002, M.S. Biology, 1978, B.S. Zoology*

Alumna Diane Morales is a lecturer in the Biological Sciences Department and at Santa Ana Community College. Morales earned her master’s degree in biology in 2002 and her bachelor’s degree in zoology in 1978. She wrote her master’s thesis on the digestive tract of parasitic catfishes in South America. She organizes and leads tours through BioTrek for K-12 students.

*“The biological education I received at Cal Poly Pomona is equal to the best available anywhere, including the places where I have taught—the professors are dedicated to teaching, first and foremost.”*

*Brent Mishler, M.S. 1978, B.S. 1975*

Brent Mishler is Director of the Jepson Herbarium and the University Herbarium at UC Berkeley, as well as a professor in the Department of Integrative Biology, where he teaches systematics and plant diversity. Dr. Mishler is well known for his studies of ecology and evolution of mosses, phylogenetic studies of the green plants and writings on the theory of systematics. He earned his Ph.D. from Harvard University in 1984. Dr. Mishler was on the faculty at Duke University for nine years before moving to UC Berkeley in 1993. Dr. Mishler was named Distinguished Alumnus of the Year in Cal Poly Pomona’s College of Science for 2003.





CAL POLY POMONA

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*“As the university’s student body president and a former Science Council Officer, I have come to appreciate the vast resources within the Biological Sciences department and within the campus. The networking opportunities and the commitment of both the faculty and administration have been a great asset in my academic journey to reach my career goal.”*

*Jason Willkom Dyogi, Biology Student  
ASI President*

*“At Cal Poly Pomona, I’ve evolved from an average commuter to serving as Science Council President and organizing a task force for the betterment of the college. I’m involved in a national biology honor society that is starting a free MCAT review program. I’ve ignited my own passion for learning, overcoming adversity and achieving. As the future awaits, I know I am ready.”*

*June “Elaine” Tiamzon, Biology Student*



## APPLYING TO CAL POLY POMONA

For an application and information on enrolling at Cal Poly Pomona, contact the Admissions Office at 909/869-3210 or go to [www.csupomona.edu/admissions](http://www.csupomona.edu/admissions).

Cal Poly Pomona is one of only six polytechnic universities in the United States. Located on more than 1,438 acres, the university is one of the jewels of California’s Inland Empire. A diverse student population of more than 19,000 students is enrolled in the more than 90 degree programs available on campus. Cal Poly Pomona is a university that prides itself on creating an educational environment that supports intellectual, personal, and professional development as it prepares students for lifelong learning and careers in a changing, multicultural world.