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# Biology, B.S.

Cal Poly Humboldt is an incredible place to study biology. Our faculty are dedicated to teaching excellence and hands-on learning, instructing courses that utilize specialized equipment, impressive natural collections, laboratory facilities, and the ecologically diverse field sites of our region. Extensive opportunities for research prepare our students for a wide range of careers in biology. Come be inspired!

## Experience Your Learning

Cal Poly Humboldt's Biology program provides a rigorous curriculum, plus field experience in nearby natural habitats.

Biological Sciences is a thriving community at Humboldt, where you'll have the opportunity to meet people and apply your knowledge to real world issues.

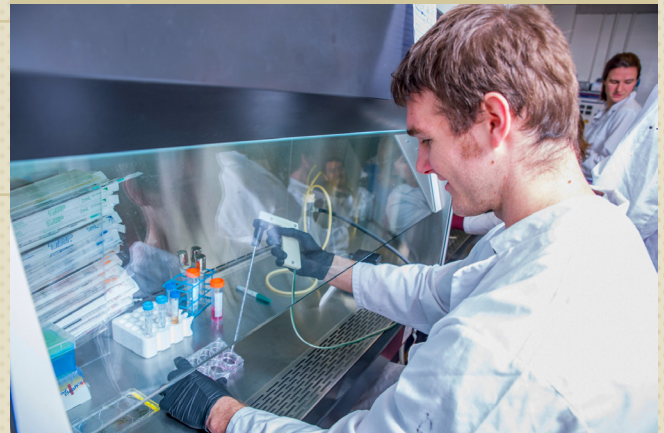
Your education will be enhanced resources that include an herbarium, vertebrate museum, herpetology and entomology collections, two greenhouses, environmental growth chambers, and specialized advanced equipment like electron microscopes and a CT scanner.

The Biotechnology Laboratory supports state-of-the-art instruction in cell biology, genetics, immunology, and biotechnology. Major equipment and facilities include ultrafreezers, thermal cyclers, cell culture labs, a microplate reader, laminar flow hoods, inverted microscopes, and mammalian cell culture capabilities.



### X Did you know?

- The Coral Sea is Humboldt's 90-foot ocean going research and teaching vessel, students can collect and observe marine plants and animals.
- The Humboldt Vertebrate Museum houses a collection of more than 15,000 specimens.
- We hold a research seminar series with national and international participation.



# Academics & Options

## Biology, B.S.

### Program Concentrations

#### General Biology

Designed to allow a wide range of flexibility in designing a program to meet an individual student's needs.

#### Cellular and Molecular Biology

Designed for biology majors interested in understanding the cellular and molecular processes that govern biological form and function.

#### Ecology

Designed for students who are interested in a hands-on approach to understanding how living organisms interact with one another and the environment, and the consequences of these interactions for biodiversity and ecosystem function.

#### Microbiology

A broad, laboratory-oriented background in the study of microorganisms of all kinds (bacteria, algae, fungi, protozoa, viruses, etc.).

#### Science Education

For students who want to teach biology at the secondary (high school) level. One additional year of courses (after the B.S.) can lead to a teaching credential.

#### Minor

- Biology Minor



## Careers

Favorable opportunities can be expected for biological scientists with advanced degrees and for bachelor's candidates with outstanding educational and experiential backgrounds. Employment in the life sciences is expected to grow due to recent advances in genetic research, advances in biological technology, and efforts to conserve the environment.

- Field Biologists
- Ecologists
- Microbiologists
- Physiologists
- Marine Biologists
- Geneticists
- Cell Biologists
- Developmental Biologists
- Biotechnology Researchers
- Biochemists



**This program helped me prepare for my current position as my first-hand experience in research made me an excellent candidate in job applications. I gained experience working with CRISPR in the Cell Biology course and I learned how to culture stem cells in the Stem Cell course, both skills that I continue to utilize daily."**

**Casiana Gonzalez** ('18, Biology),  
Graduate Student Researcher,  
University of California, Davis





# Botany, B.S.

Cal Poly Humboldt is an incredible place to study botany. Our faculty are dedicated to teaching excellence and hands-on learning, instructing courses that utilize specialized equipment, impressive natural collections, laboratory facilities, and the ecologically diverse field sites of our region. Extensive opportunities for research prepare our students for a wide range of careers in biology. Come be inspired!

## Experience Your Learning

Surrounded by a wide range of habitats, from coastal to mountain wilderness, Cal Poly Humboldt is located in the perfect environment for field research. The “natural laboratories” of our diverse ecosystems will inspire you and guide your learning, with many opportunities for hands-on learning throughout your undergraduate career.

Participate in the **Among Giants Humboldt Immersion** to discover biodiversity in animals, plants, and microbes in the local environment.

Hands-on work with vascular plants, bryophytes, lichens, fungi, and algae provides fundamental experiential training for students at the organismal level.

Our botanical collections are the best in the entire CSU system. The Dennis K. Walker Greenhouse collection contains more than 1,000 species of plants in 187 families. The Cal Poly Humboldt Vascular Plant Herbarium (HSC) consists of 105,000 specimens, with an emphasis on the flora of northwestern California. The collection offers excellent opportunities to study the rich diversity of our native flora, as well as non-native and invasive species.

### X Did you know?

- **First-year students take part in Among Giants, our place-based learning community, where you'll venture into redwood forests, mountains, dunes, and marshes to study animals, identify ferns, and examine the soil.**
- **The Greenhouse Club invites students from all majors to participate in greenhouse activities that include propagating plants, practicing integrated pest management, and basic horticulture skills around the greenhouse area.**
- **The Biology Seminar is a research seminar series with national and international participation.**





# Academics & Options

## Botany, B.S.

Learn and appreciate the biological processes unique to plant life with a dedicated learning community and the best botanical collections in the CSU system. Biological Sciences is a thriving community at Humboldt, where you'll have the opportunity to meet people and apply your knowledge to real world issues.

## Minor

- Botany Minor



## Careers

Employment in the life sciences is expected to grow due to recent advances in genetic research, advances in biological technology, and efforts to conserve the environment.

- Herbarium Curators
- Naturalists
- Plant Physiologists
- Technical Writers
- Plant Ecologists
- Environmental Consultants
- Botanists
- Horticulturists
- Science Librarians
- Plant Pathologists



**Cal Poly Biology gave me a solid foundation in biology spanning the tree of life. The coursework was rigorous and, I would argue, unparalleled in its organismal breadth. Importantly, I was also given opportunities to apply what I learned in my courses to scientific research. This prepared me for graduate school and a career as a scientist, which I would never have considered if not for my mentors in the department."**

**Kelly Matsunaga** ('12, Botany), Assistant Professor and Curator, Kansas Biodiversity Institute





# Zoology, B.S.

Cal Poly Humboldt is an incredible place to study zoology. Our faculty are dedicated to teaching excellence and hands-on learning, and they lead courses that utilize specialized equipment, impressive natural collections, laboratory facilities, and the ecologically diverse field sites of our region. Extensive opportunities for research prepare our students for a wide range of careers in zoology. Come be inspired!

## Experience Your Learning

Surrounded by a wide range of habitats, from coastal tide pools to mountain wilderness and from rivers to the ocean, Humboldt is in the perfect environment for field research.

You can study invertebrates in the tidepools, insects in the streams, flying squirrels and amphibians in the redwood forests, and whales in nearshore waters.

Learn about marine animals and study them at our Telonicher Marine Lab or aboard the University's research vessel, the Coral Sea, and gain scientific diving skills through a dedicated Scientific Diving Minor.

The Humboldt Vertebrate Museum, which houses more than 15,000 mammal, bird, amphibian, and reptile specimens, is used for teaching multiple undergraduate courses and for undergraduate research.

As a Zoology undergraduate, you can expect to conduct independent hands-on research in upper division classes such as Intertidal Ecology, Herpetology, Comparative Animal Behaviour and Comparative Vertebrate Anatomy.

Motivated undergraduates have the opportunity to publish papers and attend national scientific conferences to present their research.

### X Did you know?

- Zoology is one of the Biology Department's most popular majors; it is the only Zoology major in the CSU system, and one of only two in California.
- Humboldt has a low student-to-faculty ratio, meaning you get to know your professors and fellow students closely.



# Academics & Options

## Zoology, B.S.

The Zoology curriculum offers a strong foundation in the study of zoology including the study of the evolution, physiology, ecology and conservation of animals. In addition, our program also offers the flexibility for each student to tailor their upper division classes to help them meet their academic and career goals. Humboldt's robust taxonomy courses (Mammalogy, Ornithology, Herpetology, Ichthyology, Invertebrate Zoology, Entomology, Advanced Mammalogy and Marine Mammalogy) are offered more frequently and go into more depth than those at most universities.

## Minor

- Zoology Minor



## Careers

Favorable opportunities can be expected for biological scientists with advanced degrees and for bachelor's candidates with outstanding educational and experiential backgrounds. Employment in the life sciences is expected to grow due to recent advances in genetic research, advances in biological technology, and efforts to conserve the environment.

- Zookeepers
- Veterinarians
- Museum Curators
- Federal and State Agency Biologists
- Scientific Illustrators
- Naturalists
- Biological Consultants
- National or State Park Interpreters
- Science Educators
- Scientific Writers



**Humboldt's Biology program provided an unparalleled hands-on opportunity to explore and study the animals and ecosystems that were being discussed in our lectures. Having access to the forest and the ocean provided a learning opportunity unlike any other university in California."**

**Mark Murray** ('13, Biological Sciences),  
Senior Saltwater Aquarist at the Loveland Living Planet Aquarium