

BIOLOGICAL SCIENCES

PREPARATION FOR THE MAJOR

High School Preparation

Recommended as part of or in addition to UC's "a-g" admission requirements:

**One year of biology,
One year of chemistry,
Mathematics through
trigonometry,
One year of physics.**

Transfer Preparation

The following courses are required prior to transfer, with a minimum GPA of 2.7 or higher:

One year sequence of general chemistry with laboratory, and one sequence (2-3 terms) of general biology.

To make normal progress in the major, it is also strongly recommended that students complete all of the following courses prior to transfer:

Two terms of calculus and one term of statistics:

Two terms of organic chemistry with laboratory,

One-year sequence of physics with laboratory.

Please see the UCSB *General Catalog* (www.catalog.ucsb.edu) or your school counselor for more information on course preparation. California community college students should see www.assist.org.

Biology is the science of life. Biologists study the nature and activity of all living forms ranging from populations and organisms to cells and molecules. As part of UCSB's Departments of Ecology, Evolution, and Marine Biology, and of Molecular, Cellular, and Developmental Biology, students are at the forefront of this fascinating and dynamic field.

UCSB is ideally located for field studies in the biological sciences. The area surrounding UCSB includes the Santa Ynez mountains, the Los Padres National Forest, the Pacific Ocean, and the Channel Islands. Students are within easy reach of an exceptional range of aquatic and terrestrial environments including estuary, shoreline, intertidal, and deep-water habitats. The campus' outdoor "laboratories" include four of the University of California's protected natural land and water reserves: the Carpinteria salt marsh, the West Campus sand dunes, Santa Cruz Island in the Santa Barbara Channel, and the Sierra Nevada Aquatic Research Laboratory in the eastern Sierra Nevada mountain range. Santa Barbara is also situated in the migratory flight paths of a number of birds and students may observe as many as 60 bird species within the campus area.

UCSB's Biological Sciences students also benefit from many opportunities to acquire hands-on experience through lab coursework or independent studies in on-campus laboratories and institutes, including two nationally recognized research units: the Marine Science Institute and Neuroscience Research Institute. The biochemistry laboratories offer experience in areas such as recombinant DNA techniques, cell developmental biology, genetics, immunology, microbiology and pharmacology. Various internships are also available in the Health Science and BioTech industries. The department also maintains green houses, an herbarium, a vertebrate museum, a marine laboratory, and a computer facility to support undergraduate courses.

The Departments

Biological Sciences are represented in two departments at UCSB: the Department of Ecology, Evolution, and Marine Biology and the Department of Molecular, Cellular, and Developmental Biology. The Bachelor of Arts (BA) and Bachelor of Science (BS) degrees in Biological Sciences are offered collaboratively by the two departments and are designed to provide students with a broad perspective and range of experiences within the diverse field of biology.

In addition, each department offers four specialized majors, each leading to the BS degree. These majors allow students with particular interests and career goals to gain more concentrated experience in the area of their special interest. Specifically, the Department of Ecology, Evolution, and Marine Biology offers BS degrees in Aquatic Biology (marine and freshwater), Ecology and Evolution, Physiology, and Zoology. The Department of Molecular, Cellular, and Developmental Biology offers BS degrees in Biochemistry-Molecular Biology, Cell and Developmental Biology, Microbiology, and Pharmacology.

More than 100 upper-division (junior and senior level) courses are available for students in these majors. These courses include laboratory and field studies, lectures and seminars, and independent studies and group projects.

The Major

All students interested in any area of the biological sciences will enter UCSB as Pre-Biological Sciences majors. Pre-Biology majors share a common core curriculum, typically completed during the freshman and sophomore years, consisting of introductory biology with laboratory, general chemistry with laboratory, mathematics, physics with laboratory, and for many of the majors, organic chemistry with laboratory. After completion of a subset of this key preparatory coursework, students may petition to declare the full major. The Biological Sciences BS degree requires completion of upper-division quarter coursework in biology and offers a strong, well-rounded background in the field. The BA degree in Biological Sciences allows students greater flexibility in taking courses both within and outside of their major. Students are encouraged to work closely with faculty members who share their interests and to seek assistance in program planning from the well-informed and helpful undergraduate advisors.

Careers in Biological Sciences

Modern biology is too comprehensive and complex a field for one person to master all subdisciplines at the advanced level. Thus, most professional biologists specialize in a particular area. Many biology students pursue graduate study in an area of interest, finding that they can gain admission to any major university on the basis of their Biological Sciences major from UCSB.

Some students elect employment immediately upon graduation. These students secure positions with state or federal agencies or begin careers in research or supervision within private industries such as pharmaceutical companies and environmental consulting firms.

The Biological Sciences major and many of the specialized majors are excellent preparation for careers in the health sciences (dentistry, medicine, veterinary medicine, pharmacy, and medical technology). Students interested in the health sciences and related professions can take advantage of the University's excellent health sciences advisory system. They can seek advice and support from the beginning of their studies in biology up to their entrance into health sciences graduate programs and professional schools.

Students interested in conducting research or teaching biological sciences at a college or university should plan to complete the Ph.D. degree. Teaching at the junior or senior high school (secondary) level requires the California Single Subject Teaching Credential. Students considering this last option should discuss their plans with the credential advisor in UCSB's Graduate School of Education early in their academic careers.

If you have more questions about UCSB's Biological Sciences major, please call or write to one of the department's undergraduate advisors or visit their web pages at:

Biological Sciences
Department of Molecular, Cellular, and Developmental Biology (EEMB)
Department of Ecology, Evolution, and Marine Biology (EEMB)
University of California
Santa Barbara, CA 93106-9610
805/893-3052 and 805/893-5281
e-mail: bioadv@lifesci.ucsb.edu
website: www.lifesci.ucsb.edu/EEMB
website: www.lifesci.ucsb.edu/MCDB