

Biology

CSUB offers a Bachelor of Science Degree in Biology and a Bachelor of Arts Degree in Natural Sciences with a Primary Concentration in Biology.

The curriculum provides study in areas of emphasis such as pre-graduate school preparation, pre-professional preparation (pre-med, pre-vet, clinical science, etc.), teacher preparation, animal biology and plant biology. Career opportunities abound in Biology in research, government, education industry, and the medically-related professions. Our graduates have the ability and skills to enter many areas directly upon graduation or to continue on to advanced studies in other specialty areas. Biology majors need to integrate chemistry, mathematics, computer science, and other related areas within the major. Our philosophy is that biological principles and concepts are learned best through experimentation. A low student-to-faculty ratio lets students interact with their instructors. Students use a wide variety of equipment, and have extensive hands-on experience with laboratory and field investigations. This ability to work in small groups, or individually, has been effective in ensuring student success.

Scholarships

- Fairie A. Decker Memorial Scholarship
- John Reed Memorial Scholarship
- Friends of Biology Scholarship

Visit our website:

www.csub.edu/biology/scholarships.html



Requirements for the B.S. in Biology

Students seeking a Bachelor of Science in Biology must complete the following:

1. Biology Courses: *
 - a. BIOL 201, 202, and 203.
 - b. BIOL 304, 305, 306, 310, 470, and 490.
 - c. At least 25 units of additional upper division coursework in Biology. At least three of these courses must be five unit courses with lab and at least one must be at the 400-level.

* A minimum GPA for these 65 units is 2.0

2. Cognates: *
 - a. CHEM 212 or equivalent.
(Note: CHEM 211 is a prerequisite to CHEM 212 and may be counted toward a Chemistry minor.)
 - b. MATH 191 or equivalent.
 - c. At least 10 units in appropriate cognate areas subject to the approval of the advisor.

* A minimum GPA for these 25 units is 2.0

General Education Information:

- a. Areas BI-3 – Satisfied by Biology majors
- b. Theme 1 – Satisfied by Senior Seminar
- c. InSt 312 – Recommended for Theme 2
- d. Area B4 – Recommended MATH 140 or 211.

Natural Sciences & Mathematics
California State University, Bakersfield
13 SCI 9001 Stockdale Highway
Bakersfield, California 93311-1022

Requirements for the B.A. in Natural Sciences

CSUB has developed a degree program, the Bachelor of Arts in Natural Sciences, to prepare prospective science teachers for subject matter certification in the State of California via the California Subject Matter Examinations for Teachers (CSET) in Science. Please see the catalog section under Natural Sciences for information about this degree program. Additional information may be obtained from the Biology Department at 661-654-3089.

I. Primary Concentration in Biology

BIOL 201, 202, 203, 304, 305, 306, 470, 490 and 318 or 357 plus one elective approved upper division Biology lab course.

II. Secondary Concentration including III. Cognates.

Select one of the following Secondary Concentrations—a, b, or c.

a. Chemistry 211, 212, 213 plus two upper division Chemistry courses acceptable for the major; Cognates-Geology 201, 205 or 308; Physics 110, 201, or 221, 202 or 222, and 203 or 223.

b. Geology 201, 303, 205 or 308, and two from 307, 309 and 320; Cognates-Chemistry 211, 212; Physics 110, 201 or 221, 202 or 222, and 203 or 223.

c. Physics 110, 221, 222, 223, 307 and 324; Cognates-Chemistry 211 and 212; Geology 201, 205 or 308; Math 201 and 202 and 222.

Department of Biology 61 SCI
661-654-3089 FAX 661-654-6956
Website: www.csub.edu/biology
E-mail: biology@csub.edu

Pre-Graduate School/Pre-Professional Programs

Sample programs for students considering Graduate or Professional Schools

Pre-Graduate School Preparation

(Biology Major with Graduate School Preparation)

This recommendation is designed to provide the basic course requirements to prepare students to meet the entrance requirements for most graduate programs in biology. The course list below also satisfies the major requirements for a Bachelor of Science (B.S.) degree in Biology.

A. At least 65 units of Biology coursework, which include the following:

1. Biology 201, 202, 203
2. Biology 304, 305 and 306
3. Biology 310, 470 and 490
4. Electives (see below)

B. Cognates:

1. Two years of Chemistry:
Chemistry 211, 212, 213, 331, 332 and 333
2. One year of Physics; Physics 201, 202, 203
3. Mathematics 201

C. Research Experience:

1. Biology 480 or 496

Choice of upper division electives (to complete A) should be chosen based on areas of interest. For admission to graduate programs breadth in biology and a strong foundation in the cognates is often more important than course specialization.

Cell & Molecular Biology: Biology 312, 342, 424, 430, 433 and Chemistry 340.

Plant Science: Biology 321 and 462.

Animal Science: Biology 322, 324, 351, 424, 451 and 455.

Ecology: Biology 321, 322, 324, 404, 406 and 462.

Microbiology: Biology 312, 317, 318, 324, 414; and Chemistry 340.

Pre-Professional/Health Career Preparation

(Biology Major with Professional School Preparation)

In each of the following areas the basic courses prepare students to enter post-baccalaureate study in various health professions. It is important to note that the major requirements for the Biology B.S. degree can be obtained by taking significantly fewer courses than listed. Furthermore, various courses can be substituted. Details for these adjustments can be provided by appropriate Biology advisors. Adjustments may result in the need to complete additional courses depending upon the specific requirements of a particular post-baccalaureate school. Students are advised to investigate the schools they wish to attend.

Medicine/Dentistry/Pharmacy/Veterinary Sciences/Physical Therapy

Working with your advisor, students plan their degree to include courses from the following list:

- Biology 312, 314, 317, 318, 324, 342, 351, 355, 357, 424, 430, 433, 451, 455.
- Chemistry 211, 212, 213, 331, 332 and 333 or 340.
- Physics 201, 202, 203 or 221, 222, 223.
- Mathematics 211 and 212 or 201 and 202.

Note: Individual programs in Physical Therapy vary widely. It is advised that you investigate the specific requirements. For example, some programs require anatomy and physiology.

Clinical Laboratory Science

Courses that must be included within the basic degree to meet minimum requirements for admission into a professional program include:

- Biology 312 Microbiology
- Biology 314 Medical Microbiology
- Biology 317 Medical Mycology
- Biology 318 Immunology
- Biology 319 Hematology
- Biology 357 Human Physiology (recommended)
- Biology 430 Molecular Biology (recommended)
- Chemistry 211, 212, 213, 331, 332, 340, and 350
- Physics 201, 202, 203
- Mathematics 191 or 211

Field Biology

Students interested in outdoor biology and a career in a field such as biological consulting, state or national park biology, BLM, Fish & Game, or other government agencies, or environmental education (state or national park interpretive naturalist) are encouraged to select elective courses from this list.

- Biology 321 Plant Diversity
- Biology 322 Vertebrate Diversity
- Biology 323 Animal Rehabilitation
- Biology 324 Invertebrate Diversity
- Biology 404 Conservation Biology
- Biology 406 Advanced Ecology
- Biology 424 Evolutionary Genetics
- Biology 462 Plant Physiology