

# Biology

## Faculty

Rick Zechman, *Chair*  
 John Constable, *Graduate Coordinator*  
 Rick Zechman, *Marine Science Coordinator*  
 Gregor M. Cailliet, *Moss Landing Marine Laboratories Coordinator*  
 David M. Andrews, *Credential Adviser*  
 Fred Schreiber, *Undergraduate Coordinator*  
 Steven C. Blumenshine  
 Jason Bush  
 Alejandro Calderon-Urrea  
 Paul Crosbie  
 Ethelynda E. Harding  
 Madhusudan Katti  
 Ruth A. Kern  
 Shirley Kovacs  
 Craig Magie  
 Ulrike Müller  
 James P. Prince  
 Mamta Rawat  
 Larry Riley  
 Brian Tsukimura  
 Alice D. Wright  
 Hwan Youn  
 Lenore Yousef

## Bachelor of Science Degree Requirements

### Biology Major

The Bachelor of Science in Biology is a 120-unit program. Of the total, 51 units are required to satisfy the university's General Education Program and 22 units are required by the Department of Biology to satisfy the biology core. The core curriculum is a sequence of courses required for all biology majors. The core curriculum builds the foundation upon which further learning in biology will be based. Additional requirements, varying from 22-38 units depending upon the option choice the student selects, are specified courses from related fields outside the Department of Biology.

Each biology major must select one of the three option choices to complete the Biology Bachelor of Science requirements. All of the three option choices are flexibly designed. As a result, virtually any career goal in the life sciences and related fields can be accommodated by selecting the most appropriate option and by judiciously choosing specific courses within that option.

Students should meet with an adviser a minimum of once a semester so the adviser can review the student's program and progress.

Students planning for graduate and professional schools should be aware that entrance requirements for those programs will often exceed the minimal requirements for a Biology B.S., particularly in the ancillary fields of chemistry, physics, and mathematics. An adviser should be consulted for specific information on graduate and professional school requirements.

## Biology Core

The biology core is required of all majors (see *Advising Notes* for all options, page 381-382.)

### Units

BIOL 1A, 1B, 101,  
 102, 103, 104, 105.....22

In addition to the core, all majors must complete major and additional requirements in one of the three options described as follows:

## Ecology, Evolutionary, and Organismal Biology Option

This degree program is intended for students who wish to study organisms, their evolutionary change, and their relationships with their environments. This option has a strong field component that takes full advantage of the outstanding natural environments conveniently located near our campus. Molecular and computer laboratory facilities are also available to study genetic variation among organisms. Students in this program acquire the skills to apply both theory and methods to important questions in freshwater, marine, and terrestrial systems. Students completing this option are well prepared for entry into a wide range of careers in governmental natural resource agencies and consulting firms. They are also well prepared for graduate programs leading to advanced degrees in biology and related natural and applied sciences. Students may obtain an emphasis in marine science by selecting electives offered at the Moss Landing Marine Laboratories. Students must consult an adviser for help in selecting courses appropriate to their interests and career objectives.

### Units

**Major requirements .....42**

*Biology Core* ..... (22)

*Option requirements* ..... (20)

(Select at least one course from each of lines A-D for a total of 20 units. At least one botany or microbiology course must be selected from A-D.)

- A. *Physiology*:  
 BIOL 160, 161, 162 and 162L; MSCI 135
- B. *Organismal Biology*:  
 BIOL 120, 123, 124, 131, 133, 134, 135, 136, 174; MSCI 112, 113, 124, 125, 131\*\*
- C. *Form and Classification*:  
 BIOL 122, 125, 130, 132, 140, 143, 178
- D. *Ecological Processes*:  
 BIOL 171, 172, 175, 176; MSCI 103, 144\*\*

**Additional requirements .....22**

- 1. CHEM 3A, 8, and 150 .....(10)
- 2. MATH 70 or 75.....(4)
- 3. MATH 101  
 or PSYCH 42 .....(4)
- 4. PHYS 2A .....(4)

**General Education requirements .....51**

**Electives and remaining degree requirements .....14**

(See *Degree Requirements*); may be used toward a double major or minor.

**Total ..... 120\***

\* See *Advising Note 1*.

\*\* MSCI courses are offered only at Moss Landing Marine Laboratory.

## Molecular, Cellular, and Developmental Biology Option

This degree option is intended for students who wish to study the molecular mechanisms underlying cellular structure and function and the processes of organismal development. Molecular biology combines the knowledge and techniques of genetics, cell biology and biochemistry, forming a basis for in-depth inquiry into all aspects of biology. The option provides a solid foundation for graduate and professional studies emphasizing cellular and molecular processes, including the Master of Biotechnology and the Certificate of Advanced Studies in Biotechnology. Students preparing for the biotechnology certificate program should select a general microbiology course with laboratory and a general biochemistry laboratory course among their elective courses.