

BIOCHEMISTRY

Program Description

The major in biochemistry is primarily intended for students who plan to transfer to a four-year institution to earn a bachelor's degree. Students who graduate with a bachelor's degree in biochemistry will be able to pursue a wide range of career opportunities in chemistry, biology, and related fields. In addition, biochemistry majors will take coursework similar to that required for admission to medical, dental, veterinary, and pharmacy schools.

Learn more about the program on the [Chemistry website](#).

Program Learning Outcomes

- Students will have knowledge of current theories and applications in the fields of chemistry and biology.
- Students will demonstrate skill in researching, assessing and evaluating topics of interest.
- Students will communicate effectively using the language of chemistry.
- Students will have facility in the safe handling of chemicals and the execution of common chemistry and biology laboratory techniques.

Career Opportunities

Biochemistry graduates will find an impressive array of opportunities for exciting careers in a wide range of fields due to their coursework in chemistry and biology. Potential careers include basic research, pharmaceuticals, biotechnology, forensic science, food science, environmental protection, new product and process development, and education. Aside from careers in research and development in the chemical industry, there is a need for technically trained people in non-traditional areas such as marketing and sales, scientific information, patent law, health and safety, and handling of hazardous materials. Academic careers for biochemists include university teaching and science teaching in secondary schools, an area that will expand greatly in the future. A bachelor's degree can also provide a strong foundation for graduate study at medical, dental, veterinary, and pharmacy schools. Students with biochemistry degrees have been notably successful in these areas.

Award Type(s)

- AS = Associate in Science Degree

Units Required

- Major: 60-62

Associate Degree Requirements

Code	Title	Units
English Proficiency		
Select one of the following:		
ENGL 1A	COMPOSITION & READING	5
ENGL 1AH	HONORS COMPOSITION & READING	5
ENGL 1S & ENGL 1T	INTEGRATED COMPOSITION & READING and INTEGRATED COMPOSITION & READING	8
or equivalent		
Mathematics Proficiency		

Select one of the following:

MATH 105	INTERMEDIATE ALGEBRA	5
MATH 180	QUANTITATIVE REASONING	5

or any MATH course approved for Foothill GE Area V, Communication & Analytical Thinking

A minimum of 90 units is required¹ to include:

- Completion of one of the following general education patterns: Foothill General Education, CSU General Education Breadth Requirements or the Intersegmental General Education Transfer Curriculum (IGETC)
- Core courses (60-62 units)

¹ Additional elective course work may be necessary to meet the 90-unit minimum requirement for the associate degree.

Note: All courses pertaining to the major must be taken for a letter grade. In addition, a grade of "C" or better is required for all core courses used for the degree.

Core and Support Courses

Code	Title	Units
Core Courses		
CHEM 1A or CHEM 1AH	GENERAL CHEMISTRY HONORS GENERAL CHEMISTRY	5
CHEM 1B or CHEM 1BH	GENERAL CHEMISTRY HONORS GENERAL CHEMISTRY	5
CHEM 1C	GENERAL CHEMISTRY & QUALITATIVE ANALYSIS	5
CHEM 12A	ORGANIC CHEMISTRY	4
CHEM 12AL	ORGANIC CHEMISTRY LABORATORY	2
CHEM 12B	ORGANIC CHEMISTRY	4
CHEM 12BL or CHEM 13BH	ORGANIC CHEMISTRY LABORATORY HONORS ORGANIC CHEMISTRY LABORATORY	2-3
CHEM 12C	ORGANIC CHEMISTRY	4
CHEM 12CL or CHEM 13CH	ORGANIC CHEMISTRY LABORATORY HONORS ORGANIC CHEMISTRY LABORATORY	2-3
And three courses from the following:		15
MATH 1A or MATH 1AI	CALCULUS HONORS CALCULUS I	
MATH 1B or MATH 1BHI	CALCULUS HONORS CALCULUS II	
MATH 1C	CALCULUS	
MATH 1D	CALCULUS	
MATH 2A	DIFFERENTIAL EQUATIONS	
And two courses from the following:		12
BIOL 1A	PRINCIPLES OF CELL BIOLOGY	
BIOL 1B	FORM & FUNCTION IN PLANTS & ANIMALS	
BIOL 1C	EVOLUTION, SYSTEMATICS & ECOLOGY	
Total Units		60-62