

Biochemistry, B.S.

DEPARTMENT

Department of Chemistry

Joy Goto, Interim Chair
Science Building, Room 380
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MN in Chemistry, Minor

BA in Chemistry, B.A.

BS in Chemistry, B.S.

MS in Chemistry, M.S.

BS in Biochemistry, B.S.

CRED in Single Subject Credential - Chemistry

The Chemistry Department provides (1) undergraduate training in chemistry for students planning professional careers in chemistry, biochemistry and allied professions, and for those contemplating graduate work for advanced degrees; (2) undergraduate training in chemistry for those planning careers in professions such as medicine, chiropractic, dentistry, pharmacy, etc.; (3) participation in the preparation of teachers of chemistry and the other physical sciences in the teaching credential programs; (4) teaching of the basic chemical sciences required by students majoring in related fields such as physics, biology, nursing, engineering, geology, agriculture, home economics, and criminology; (5) stimulation of interest in and understanding of the achievements and contributions of chemistry to our civilization for non-science students, as a part of General Education; and (6) graduate instruction in chemistry for the Master of Science degree for students who intend to enter the chemical industry, pursue further advanced study, or who wish to improve their qualifications as teachers in secondary schools and community colleges. The multi-disciplinary forensic science degree program prepares students for continued success by integrating instruction with active forensic research, collaboration with local crime laboratories, and real world experiences.

The Bachelor of Science degree program in Chemistry is accredited by the American Chemical Society. Students who satisfactorily complete the program are recommended by the department for certification as graduate chemists by the American Chemical Society. Students completing the Bachelor of Arts degree may be recommended for certification by completing additional requirements of the American Chemical Society.

Facilities

All upper-division and graduate chemistry laboratories and support areas are housed in our science building. Eight four-station graduate laboratories are well equipped, with access to modern instrumentation. Instrumentation in the department includes: Varian EM 360 and Gemini 200 FT NMR spectrometers, GC-MS, atomic absorption spectrometers, Fourier Transform IR (FTIR), liquid scintillation counter, Lambda 6, Shimadzu, HP Diode-Array, spectrophotometers, spectrofluorometer, radiation equipment, liquid chromatographs, high speed refrigerated centrifuges, gas chromatographs, and Unix workstations for advanced computational chemistry. The university library includes many journal subscriptions in chemistry plus numerous texts and related books.

REQUIREMENTS

Bachelor of Science in Biochemistry

Degree Requirements

The Bachelor of Science in Biochemistry is intended for students who plan to pursue a career in biochemical research, chemistry research, and suitable for a student pursuing health professions (medical, pharmaceutical, dental, and other clinical and health professions). The B.S. program is a comprehensive, multi-disciplinary program to prepare students for graduate study in pursuit of a Master of Science (M.S.) or Doctor of Philosophy (Ph.D.) in areas related to biochemistry.

Note: Biochemistry majors may not take courses listed in category A or B for CR/NC grades.

1. Major requirements (50-54 units)

Core Program

CHEM 1A, 1AL, 1B, 1BL, 102, 110A, 112, 128A, 128B, 129A, 129B, 155A, 155B, 156

Select two additional upper-division CHEM courses (4-7 units): CHEM 106, 106S, 111, 123, 124, or 190 or other approved courses.

Select two additional upper-division BIOL courses (6-7 units): BIOL 102, 103, 104, 120, or other approved courses.

Additional requirements (24-27 units)

BIOL 1A, 1B, 1BL

MATH 75, 76

PHYS 2A, 2B (or PHYS 4A, 4AL, 4B, 4BL, 4C strongly recommended)

2. General Education requirements (49 units)

3. Other requirements (6 units)

Upper-division writing and Multicultural and International (MI)

4. Sufficient elective units to meet required total units (varies)

5. Total minimum (120 units)*

* G.E. and MI courses can be double counted with major requirements. The writing requirement may be met by taking the upper-division writing exam. Of the 49 required General Education units, 9 units will be satisfied by the following courses in the major and additional requirements: 3 units of CHEM 1A and 1AL or PHYS 2A (or PHYS 4A and 4AL) in G.E. Breadth B1; 3 units of BIOL 1A in G.E. Breadth B2; 3 units of MATH 75 in G.E. Foundation B4. See advisor for details.

The following is an example of a four-year program for the B.S. in Biochemistry.

First Semester Fall

CHEM 1A and 1AL (5 units)

MATH 75 (4 units)

ENGL 5B or 10 (3 units)

General Education (3 units)

Total (15 units)

Second Semester Spring

CHEM 1B and 1BL (5 units)

MATH 76 (4 units)

PHYS 2A (4 units)

General Education (3 units)

Total (16 units)

Third Semester Fall

CHEM 128A (3 units)

PHYS 2B (4 units)

BIOL 1A (4 units)

General Education (3 units)

Total (14 units)

Fourth Semester Spring

CHEM 128B (3 units)

CHEM 129A (2 units)

BIOL 1B, 1BL (5 units)

Electives or General Education (6 units)

Total (16 units)

Fifth Semester* Fall

**CHEM 155A (3 units)

CHEM 129B (2 units)

CHEM 102 (5 units)

**CHEM 110A (3 units)

Electives or General Education (6 units)

Total (16 units)

Sixth Semester* Spring

***CHEM 155B (3 units)

***CHEM 156 (3 units)

***CHEM 112 (3 units)

Electives or General Education (6 units)

Total (15 units)**Seventh Semester Fall**

Electives or General Education (14 units)

Total (14 units)**Eighth Semester Spring**

Electives or General Education (14 units)

Total (14 units)

* It is important to fulfill the upper-division writing skills requirement by exam or W class during the junior year.

**Offered fall semester only.

*** Offered spring semester only.

FACULTY

Thirteen Ph.D. members are in the Department of Chemistry. Our faculty provide excellent research opportunities in analytical, biochemistry, inorganic, organic, and physical chemistry. The broad interests within the faculty have resulted in interdisciplinary research projects in collaboration with scientists and professors in other science areas: agricultural chemistry, biotechnology, clinical chemistry, forensic chemistry, forensic biochemistry, chemical physics, enology, nutritional science, and molecular biology. Research projects have involved local facilities such as the California State Crime Laboratory, University Medical Center, UCSF Fresno Medical Education Program, USDA Research Station, U.S. Veteran's Administration Hospital, U.S. Forest Laboratory, and Valley Children's Hospital.

For faculty phone numbers and e-mail, see the campus directory.

For more on the faculty, see the faculty pages.

The faculty pages are updated by the department or program.

Name	Degree	Email	Phone
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