

Chemistry, B.A.

DEPARTMENT

Department of Chemistry

Joy Goto, Interim Chair
Science Building, Room 380
559.278.2103
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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 Arts Degree Requirements

The Bachelor of Arts in Chemistry is intended primarily for those students who plan to take extensive coursework in other areas in addition to chemistry. This degree is suitable for prehealth professional students (premedical, pre dental, etc.), secondary school teaching credential students, and biochemistry students oriented toward biotechnology, forensic science, and the health professions. This degree is NOT intended for students who anticipate a career in chemistry, or who expect to continue their education in pursuit of graduate degrees.

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

1. The B.A. Chemistry Major requirements (38 units)

Core Program

CHEM 1A, 1AL, 1B, 1BL, 102, 108, 128A, 128B, 129A, 129B, 155A**, 155B***, 156 (38 units)

Additional requirements (31-38 units)

BIOL 1A, 1B, 1BL (8 units)

Elect 7 units from BIOL 102, 103, 104, 120 or other approved courses (7 units)

MATH 75, 76 (MATH 77 strongly recommended) (8-12 units)

PHYS 2A, 2B (or PHYS 4A, 4AL, 4B, 4BL, 4C strongly recommended) (8-11 units)

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)

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

5. Total units (120)*

* 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 in G.E. Breadth B1; 3 units of BIOL 1A in G.E. Breadth B2; and 3 units MATH 75 in G.E. Foundation B4. Consult the department chair or faculty advisor for additional details.

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

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 BL (5 units)

MATH 76 (4 units)

PHYS 2A or 4A, 4AL (4 units)

General Education (3 units)

Total (16 units)

Third Semester - Fall

CHEM 128A (3 units)

CHEM 129A (2 units)

PHYS 2B or 4B, 4BL (4 units)

BIOL 1A (4 units)

General Education (3 units)

Total (16 units)

Fourth Semester - Spring

CHEM 128B (3 units)

CHEM 102 (5 units)

BIOL 1B, BIOL 1BL (5 units)

Electives or General Education (3 units)

Total (16 units)

Fifth Semester - Fall*

**CHEM 108 (4 units)

**CHEM 155A (3 units)

BIOL 102 (4 units)

Electives or General Education (3 units)

Total (14 units)

Sixth Semester - Spring

***CHEM 156 (3 units)

BIOL 103 and 104 or BIOL 120 (4 units)
 Electives or General Education (6 units)
Total (13 units)

Seventh Semester - Fall
 Electives or General Education
Total (15 units)

Eighth Semester - Spring
 Electives or General Education
Total (15 units)

Total (120 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.

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