

Department of Chemistry & Biochemistry
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Chemistry (B.S.)

The B.S. degree in Biochemistry is constructed for students who desire: (a) pre-medical, pre-dental, pre-pharmacy or pre-veterinary preparation, (b) graduate study in biochemistry, or (c) careers in the life sciences that require an understanding of biological phenomena at the molecular level.

The curriculum for the B.S. degree in Biochemistry has been reviewed by the American Chemical Society (ACS) and meets its requirements for approved programs.

Careers

Degrees in Chemistry and Biochemistry open doors to careers in medicine, industry and academia. Graduates can directly seek careers in manufacturing, pharmacology, environmental protection, biotechnology, nanotechnology and many other areas related to chemical and biochemical sciences. In addition, degrees in Chemistry and Biochemistry can act as springboards into professional programs, including doctoral, medical, dental and pharmacy schools. Master's degrees also provide preparation for Ph.D. programs and qualify graduates to teach at the secondary and community college levels.

Accreditation

The Bachelor of Science degrees in Chemistry and Biochemistry are accredited by the American Chemical Society (ACS).

Program Requirements

1. Lower Division Required Courses (36 units)

CHEM 101/L General Chemistry I and Lab (4/1)
CHEM 102/L General Chemistry II and Lab (4/1)
MATH 150A Calculus I (5)
MATH 150B Calculus II (5)
MATH 250 Calculus III (3)
MATH 280 Applied Differential Equations (3)
PHYS 225 Physics I (4)
and PHYS 220AL Mechanics Lab (1)
PHYS 226 Physics II (4)
and PHYS 220BL Electricity and Magnetism Lab (1)

2. Upper Division Required Courses (40 units)

CHEM 321/L Chemical Analysis I and Lab (2/2)
CHEM 333/L Organic Chemistry I and Lab (4/1)
CHEM 334/L Organic Chemistry II and Lab (3/1)
CHEM 334R Problem Solving in Organic Chemistry II (1)
CHEM 351 Physical Chemistry I (4)
CHEM 351L Physical Chemistry Lab (1)
CHEM 352 Physical Chemistry II (4)
CHEM 352L Physical Chemistry II Lab (1)
CHEM 401/L Inorganic Chemistry and Lab (3/1)
CHEM 411 Synthesis (3)
CHEM 422/L Chemical Analysis II and Lab (2/2)
CHEM 464 Principles of Biochemistry (4)
CHEM 495A Directed Undergraduate Research (1)
or CHEM 499A Independent Study (1)

3. Upper Division Electives (3 units)

Chemistry electives selected with approval of the major advisor from 400- or 500-level courses in Chemistry other than CHEM 495 and CHEM 499.

4. General Education (48 units)

Undergraduate students must complete 48 units of General Education as described in this Catalog. 9 units are satisfied by the following courses in the major: CHEM 101 satisfies B1 Physical Science; CHEM 101L satisfies B3 Science Laboratory Activity; MATH 150A satisfies Basic Skills B4 Mathematics /Quantitative Reasoning; and CHEM 333 satisfies B5 Scientific Inquiry and Quantitative Reasoning.

Total Units in the Major: 79
General Education Units: 39
Additional Units: 2

Total Units Required for the B.S. Degree: 120

SUGGESTED FOUR-YEAR SEQUENCE FOR B.S. CHEMISTRY MAJORS

YEAR 1: 1st Semester Suggested Courses	UNITS
CHEM 101 and CHEM 101L (meets GE B1 Physical Science & GE B3 Science Laboratory Activity)	5
MATH 150A (meets GE Basic Skills: B4 Mathematics and Quantitative Reasoning)	5
GE Basic Skills: A2 Written Communication	3
GE C1 Arts	3
TOTAL	16

YEAR 1: 2nd Semester Suggested Courses	UNITS
CHEM 102 and CHEM 102L	5
MATH 150B	5
PHYS 225 and PHYS 220AL	5
TOTAL	15

YEAR 2: 1st Semester Suggested Courses	UNITS
CHEM 321/L	4
MATH 250	3
PHYS 226 and PHYS 220BL	5
GE F Comparative Cultural Studies	3
TOTAL	15

YEAR 2: 2nd Semester Suggested Courses	UNITS
CHEM 422/L	4
MATH 280	3
GE Basic Skills: A1 Oral Communication	3
GE Basic Skills: A3 Critical Thinking	3
Elective	2
Take the Upper Division Writing Proficiency Exam (UDWPE)	
TOTAL	15

YEAR 3: 1st Semester Suggested Courses	UNITS
CHEM 333/L (meets GE B5 Scientific Inquiry and Quantitative Reasoning)	5
CHEM 351 and CHEM 351L (Fall Only)	5
GE B2 Life Science	3
GE F Comparative Cultural Studies	3
TOTAL	16

YEAR 3: 2nd Semester Suggested Courses	UNITS
CHEM 334/L and CHEM 334R	5
CHEM 352 and CHEM 352L (Spring Only)	5
GE E Lifelong Learning	3
GE D1 Social Sciences	3
TOTAL	16

YEAR 4: 1st Semester Suggested Courses	UNITS
CHEM 411 (Fall only)	3
CHEM 464 and CHEM 464L	4
CHEM 495 or CHEM 499	1
GE Upper Division Section D1 Social Sciences	3
GE D2 American History Institutions and Ideals	3
TOTAL	14

YEAR 4: 2nd Semester Suggested Courses	UNITS
CHEM 401 and 401L (Inorganic Chemistry with Lab)	4
Chemistry Upper Division Elective (400 or 500 level)	3
GE Upper Division Section C2 Humanities	3
GE D3 and D4 Constitution of the United States and State and Local Government	3
TOTAL	13

OVERALL TOTAL UNITS: 120