

Program Requirements

1. Lower Division Required Courses (32 units)

BIOL 106/L Biological Principles I (3/1)
 BIOL 107/L Biological Principles II (3/1)
 CHEM 101/L General Chemistry I (4/1)
 CHEM 102/L General Chemistry II (4/1)
 MATH 255A Calculus for the Life Sciences I (3)
 MATH 255B Calculus for the Life Sciences II (3)
 PHYS 220A Mechanics (3)
 PHYS 220AL Mechanics Lab (1)
 PHYS 220B Electricity and Magnetism (3)
 PHYS 220BL Electricity and Magnetism Lab (1)

2. Upper Division Required Courses (43 units)

BIOL 380 Cell Biology (3)
 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 352 Physical Chemistry II (4)
 CHEM 401 Inorganic Chemistry (3)
 CHEM 422/L Chemical Analysis II and Lab (2/2)
 CHEM 461/L Biochemistry I and Lab (3/1)
 CHEM 462/L Biochemistry II and Lab (3/1)
 CHEM 465 Topics in Biochemistry (3)

3. Upper Division Electives (9 units)

A minimum of 3 units of upper division electives selected from the following courses:

CHEM 411 Synthesis (3)
 CHEM 433 Organic Analysis (3)
 CHEM 495A-C Directed Undergraduate Research (1-3)
 CHEM 499A-C Independent Study (1-3)
 CHEM 5XX To Be Determined Each Semester

A minimum of 6 units of electives selected with approval of major advisor from upper division courses in Biology.

4. General Education (48 units)

Undergraduate students must complete 48 units of General Education as described in this Catalog. 12 units are satisfied by the following courses in the major: CHEM 101 satisfies B1 Physical Science; BIOL 106 satisfies B2 Life Science; CHEM 101L satisfies B3 Science Laboratory Activity; MATH 255A satisfies Basic Skills B4 Mathematics/Quantitative Reasoning; and CHEM 333 satisfies B5 Scientific Inquiry and Quantitative Reasoning.

Total Units in the Major: 84
General Education Units: 36
Total Units Required for the B.S. Degree: 120

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Biochemistry (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).

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

YEAR 1: 1st Semester Suggested Courses	UNITS
BIOL 106 and BIOL 106L (meets GE B2 Life Science)	4
CHEM 101 and CHEM 101L (meets GE B1 Physical Science & GE B3 Science Laboratory Activity)	5
MATH 255A (meets GE Basic Skills: B4 Mathematics and Quantitative Reasoning)	3
GE Basic Skills: A2 Written Communication	3
TOTAL	15

YEAR 1: 2nd Semester Suggested Courses	UNITS
BIOL 107 and BIOL 107L	4
CHEM 102 and CHEM 102L	5
MATH 255B	3
GE Basic Skills: A1 Oral Communication	3
TOTAL	15

YEAR 2: 1st Semester Suggested Courses	UNITS
CHEM 321/L	4
CHEM 333/L/R (meets GE B5 Scientific Inquiry and Quantitative Reasoning)	5
PHYS 220A and PHYS 220AL	4
GE Basic Skills: A3 Critical Thinking	3
TOTAL	16

YEAR 2: 2nd Semester Suggested Courses	UNITS
BIOL 380	3
CHEM 334/L and CHEM 334R	5
PHYS 220B and PHYS 220BL	4
GE F Comparative Cultural Studies	3
Take the Upper Division Writing Proficiency Exam (UDWPE)	
TOTAL	15

YEAR 3: 1st Semester Suggested Courses	UNITS
CHEM 351 (Fall only)	4
CHEM 461/L (Fall only)	4
GE C1 Arts	3
GE D1 Social Sciences	3
TOTAL	14

YEAR 3: 2nd Semester Suggested Courses	UNITS
CHEM 352 (Spring only)	4
CHEM 422/L	4
CHEM 462/L (Spring only)	4
GE C2 Humanities	3
TOTAL	15

YEAR 4: 1st Semester Suggested Courses	UNITS
Biology Electives (300 or 400 level)	6
Chemistry Elective	3
GE D2 American History Institutions and Ideals	3
GE Upper Division Section F Comparative Cultural Studies	3
TOTAL	15

YEAR 4: 2nd Semester Suggested Courses	UNITS
CHEM 401 (Spring only)	3
CHEM 465 (Spring only)	3
GE Upper Division Section D1 Social Sciences	3
GE D3 and D4 Constitution of the United States and State and Local Government	3
GE E Lifelong Learning	3
TOTAL	15

OVERALL TOTAL UNITS: 120