

JOINT MAJOR IN CHEMISTRY AND MOLECULAR BIOLOGY AND BIOCHEMISTRY

This Bachelor of Science (B. Sc.) major program is offered jointly by the Department of Chemistry and the Department of Molecular Biology and Biochemistry. Entry requires permission of both Departments. 10/01/15

LOWER DIVISION REQUIREMENTS

- CHEM 121-4 General Chemistry and Laboratory I
- CHEM 122-2 General Chemistry II
- CHEM 126-2 General Chemistry Laboratory II
- CHEM 215-4 Introduction to Analytical Chemistry
- CHEM 230-3 Inorganic Chemistry
- CHEM 236W -3 Inorganic Chemistry Laboratory
- CHEM 260-4 Atoms, Molecules, Spectroscopy
- CHEM 281-4 Organic Chemistry I
- CHEM 283-3 Organic Chemistry IIb
- CHEM 286-2 Organic Chemistry Laboratory II
- MATH 152-3 Calculus II
- BISC 101-4 Introduction to Biology
- BISC 102-4 Introduction to Biology
- BISC 202-3 Genetics
- MBB 222-3 Molecular Biology and Biochemistry
- MBB 231-3 Cellular Biology and Biochemistry

- one of
 - MATH 150-4 Calculus I with Review
 - MATH 151-3 Calculus I
- one of
 - STAT 201-3 Statistics for the Life Sciences
 - STAT 270-3 Introduction to Probability and Statistics

Choose one of the following options: A, B, C or D.

- Option A
 - PHYS 120-3 Mechanics and Modern Physics
 - PHYS 121-3 Optics, Electricity and Magnetism
 - PHYS 131-2 Physics Laboratory I
- Option B
 - PHYS 125-3 Mechanics and Special Relativity
 - PHYS 126-3 Electricity, Magnetism and Light
 - PHYS 131-2 Physics Laboratory I
- Option C
 - PHYS 101-3 Physics for the Life Sciences I
 - PHYS 102-3 Physics for the Life Sciences II
 - PHYS 130-2 Physics for the Life Sciences Laboratory
- Option D
 - PHYS 140-4 Studio Physics – Mechanics and Modern Physics
 - PHYS 141-4 Studio Physics – Optics, Electricity and Magnetism

UPPER DIVISION REQUIREMENTS

Students complete all of the following (at least 35 units)

- CHEM 316-4 Introductory Instrumental Analysis
- CHEM 332-3 The Chemistry of Transition Metals
- CHEM 380-4 Chemical and Instrumental Methods of Identification of Organic Compounds
- MBB 309W-4 Biochemistry Laboratory
- MBB 321-3 Intermediary Metabolism
- MBB 331- 3 Molecular Biology

- one of
 - CHEM 360-3 Thermodynamics and Chemical Kinetics
 - MBB 323-3 Introduction to Physical Biochemistry

and a minimum of six units of 400 level MBB courses, and a minimum of two upper division chemistry courses, including at least 3 units (excluding CHEM 481) at the 400-level.

Electives

In addition to the above, students complete

- courses chosen to fulfill the [WQB](#) requirements
- upper division courses from any faculty to total at least 44 upper division units
- electives at any division from any faculty to provide 120 units as required for the degree.

HONORS: Students complete the same upper division requirements as those specified for the major program and

- CHEM 481-5 Undergraduate Research
- MBB 491-5 Undergraduate Research
- 3 additional units of upper-division CHEM
- 3 additional units of upper-division MBB