Biological Chemistry

Department Website: http://chemistry.uchicago.edu/kb

Program of Study

The Department of Chemistry, in conjunction with the Department of Biochemistry and Molecular Biology (BCMB) in the Division of the Biological Sciences, offers a BS degree in Biological Chemistry. The program is designed to prepare students to enter a variety of interdisciplinary fields in biochemical and biophysical sciences. Undergraduate research is strongly encouraged. By combining resources of both departments, students in this program are given the opportunity to study chemistry and physics of macromolecules, mechanisms of actions of enzymes and hormones, molecular and cellular biology, biotechnology, and other related fields.

Summary of Requirements

General Education

CHEM 11100-11200 Comprehensive General Chemistry I-II †‡ 200
One of the following sequences:
MATH 15100-15200 Calculus I-II 200
MATH 16100-16200 Honors Calculus I-II † 200
MATH 13100-13200 Elementary Functions and Calculus I-II (requires grade of A- or higher) 200
BIOS 20186 Fundamentals of Cell and Molecular Biology ** 100
BIOS 20187 Fundamentals of Genetics (or AP credit, if an AP 5 Fundamentals Sequence is completed) *** 100
Total Units 600

Major

One of the following: §* 100
CHEM 11300 Comprehensive General Chemistry III
CHEM 12300 Honors General Chemistry III
MATH 18300-18400-18500 Mathematical Methods in the Physical Sciences I-II-III § 300
CHEM 20100 Inorganic Chemistry I 100
PHYS 12100-12200-12300 General Physics I-II-III (or higher) 300
One of the following sequences: 300
CHEM 22000-22100-22200 Organic Chemistry I-II-III
CHEM 23000-23100-23200 Honors Organic Chemistry I-II-III
CHEM 26100 Quantum Mechanics
& CHEM 26200 and Thermodynamics 200
CHEM 26700 Experimental Physical Chemistry 100
One of the following: 100
CHEM 20200 Inorganic Chemistry II
CHEM 23300 Intermediate Organic Chemistry
CHEM 26300 Chemical Kinetics and Dynamics
BIOS 20200 Introduction to Biochemistry 100
BIOS 21317 Topics in Biological Chemistry 100
One of the following: 100
BIOS 21229 Genome Informatics: How Cells Reorganize Genomes
BIOS 21237 Developmental Mechanisms
BIOS 21238 Cell Biology II
BIOS 21249 Organization, Expression, and Transmission of Genome Information
BIOS 21306 Human Genetics and Evolution
BIOS 21328 Biophysics of Biomolecules
BIOS 21349 Protein Structure and Functions in Medicine
BIOS 21358 Simulation, Modeling, and Computation in Biophysics
BIOS 21360 Advanced Molecular Biology
BIOS 21510 Chromatin & Epigenetics
Grading

Students majoring in Biological Chemistry must earn (1) a major GPA of 2.0 or higher and (2) a C- or higher in all courses required by the Biological Chemistry major, including those courses counting toward general education requirements in the mathematical, biological, and physical sciences. Nonmajors may take Chemistry courses on a P/F basis; only grades of C- or higher constitute passing work.
HONORS AND UNDERGRADUATE RESEARCH

By their third year, students majoring in Biological Chemistry are strongly encouraged to participate in research with a faculty member. For more information on research opportunities and honors in Biological Chemistry, visit chemistry.uchicago.edu/undergraduate-chemistry-major-and-research (http://chemistry.uchicago.edu/undergraduate-chemistry-major-and-research/).

Excellent students who pursue a substantive research project with a faculty member in the Department of Chemistry or the Department of Biochemistry and Molecular Biology should plan to submit an honors thesis based on their work. Students usually begin this research program during their third year, and they continue their research activities through the following summer and their fourth year. To be considered for honors, students are expected to complete their arrangements with the departmental counselor before the end of their third year and to register for one quarter of CHEM 29900 Advanced Research in Chemistry or one year of CHEM 29600 Research in Chemistry during their third or fourth years.

A BS with honors in Biological Chemistry requires students to write a creditable honors paper describing their research. The paper must be approved by the program advisers in the Department of Chemistry and the Department of Biochemistry and Molecular Biology, and it must be submitted before the deadline established by the department. In addition, an oral presentation of the research is required.

To earn a BS degree with honors in Biological Chemistry, students must also have an overall GPA of 3.0 or higher.

JOINT DEGREE PROGRAM

A four-year joint degree program leading to a concurrent award of the BS in Biological Chemistry and the MS in Chemistry is available for a select group of students who have achieved advanced standing through their performance on placement or on accreditation examinations. Special programs are developed for such students. For more information, consult John Anderson at jsanderson@uchicago.edu and Vera Dragisich at vdragisi@uchicago.edu in the Department of Chemistry.