

# CHEMISTRY BACHELOR OF SCIENCE

## Program Overview

The chemistry major provides a solid foundation of scientific knowledge and experimental skills in a setting that emphasizes current developments in chemistry and experience with modern instruments and laboratory techniques. A chemistry degree prepares students for graduate school in chemistry and related fields such as biochemistry, molecular biology, medicinal chemistry, and pharmaceutical, forensic and environmental science. The major also prepares students for careers in governmental laboratories and industry. Many of Drake's chemistry alumni (<https://www.drake.edu/chemistry/about/ouralumni/>) have earned graduate degrees in chemistry, physics or medicine while many others have taken rewarding jobs in industry, government and academic institutions.

The Chemistry department believes that undergraduate research plays a major role in developing critical thinking, practical expertise and independence and helps create a sense of community among faculty and students. Participation in a research project is a requirement for a chemistry degree. The chemistry faculty has research expertise in analytical chemistry, biochemistry, inorganic chemistry, organic chemistry and physical chemistry.

## B.S. Degree Requirements

Students preparing for graduate study or a professional career in chemistry should pursue the ACS-approved Bachelor of Science program.

Code	Title	Hours
CHEM 001	GENERAL CHEMISTRY I	3
CHEM 002	GENERAL CHEMISTRY II	3
CHEM 003	GENERAL CHEMISTRY I LAB	1
CHEM 004	GENERAL CHEMISTRY II LAB	1
CHEM 008	INTRODUCTION TO INSTRUMENTS AND RESEARCH METHODS I	1
CHEM 061	INTERMEDIATE INORGANIC CHEMISTRY	3
CHEM 081	ANALYTICAL METHODS	4
CHEM 097	ORGANIC CHEMISTRY I	3
CHEM 098	ORGANIC CHEMISTRY I LAB	1
CHEM 108	ORGANIC CHEMISTRY II	3
CHEM 110	ORGANIC CHEMISTRY II LAB	1
CHEM 130	BIOCHEMISTRY I: FUNDAMENTALS	3
CHEM 131	BIOCHEMISTRY I: FUNDAMENTALS LAB	1
CHEM 148	UNDERGRADUATE RESEARCH	1-3
CHEM 165	THERMODYNAMICS AND KINETICS	4

### Chemistry Electives

Select at least 12 credits from the following: 12

CHEM 132	BIOCHEMISTRY II: METABOLISM
CHEM 133	BIOCHEMISTRY II: METABOLISM LAB
CHEM 155	ORGANIC REACTIONS AND APPLICATIONS
CHEM 166	QUANTUM-MECHANICAL EXPLORATION
CHEM 170	EXPLORATIONS IN COMPUTATIONAL CHEMISTRY
CHEM 180	EXPLORATIONS IN INORGANIC CHEMISTRY
CHEM 182	INSTRUMENTAL METHODS OF ANALYSIS

CHEM 190 INTEGRATED CHEMISTRY TOPICS		
Advanced course with a strong chemical component <sup>1</sup>		
CHEM 195	SEMINAR I	1
CHEM 198	SEMINAR II	1
MATH 050	CALCULUS I <sup>2</sup>	3
MATH 070	CALCULUS II <sup>3</sup>	3
PHY 011	GENERAL PHYSICS I (with lab)	4
PHY 012	GENERAL PHYSICS II (with lab)	4
<b>Total Hours</b>		<b>61-63</b>

<sup>1</sup> As approved by the chemistry department.

<sup>2</sup> Supplementary Courses: B.S. chemistry majors must take MATH 050 CALCULUS I, MATH 070 CALCULUS II, and one year of physics. MATH 100 CALCULUS III is recommended for students taking CHEM 166 QUANTUM-MECHANICAL EXPLORATION.

In addition to programmatic requirements, students are responsible for satisfying all requirements of the Drake Curriculum (<https://catalog.drake.edu/undergraduate/academic-information/drake-curriculum/>), including Areas of Inquiry (AOI)

Student must also satisfy university graduation requirements (<https://catalog.drake.edu/undergraduate/academic-information/graduation-requirements/>) for all undergraduate students..