

# Chemistry (BS)

*This program is offered by the College of Science and Health/ Natural Sciences and Mathematics Department and is only available at the St. Louis main campus.*

## Program Description

The bachelor of science (BS) degree in chemistry is designed to offer students a thorough grounding in the important areas of modern chemistry. Students are instructed in the theories and applications of organic, inorganic, analytical, physical and biochemistry. The program includes significant laboratory work, allowing students to become proficient in the skills necessary to succeed in a chemical career. Students earning the BS degree will be qualified to work in industrial, government and academic laboratories. In addition, some students, upon earning the BS pursue admission to graduate school, medical or dental school, health-related careers or other careers that might be enhanced by possession of a chemistry degree.

## Learning Outcomes

Students who complete the bachelor of science in chemistry will be able to:

- Explain the molecular structure of chemical substances and the connection between molecular structure and chemical behavior.
- Identify and quantify chemical substances in a given sample.
- Predict the mechanisms and products of a chemical reaction and compute reaction rates and equilibrium compositions.

## Degree Requirements

For information on the general requirements for a degree, see Baccalaureate Degree Requirements under the Academic Policies and Information section of this catalog.

- 67 credit hours core coursework
- 6 additional credit hours in CHEM at the 3000-4000 level
- Applicable University Global Citizenship Program hours, with accommodations for the chemistry BS
- Electives

## Global Citizenship Program for Chemistry BS

Requirements are modified to allow MATH 1610 to satisfy both a requirement of the major and the GCP 'Quantitative Literacy' requirement.

## Curriculum

### Core Courses (67 hours)

- CHEM 1100 General Chemistry I (3 hours)  
and CHEM 1101 General Chemistry I: Lab (1 hour)
- CHEM 1110 General Chemistry II (3 hours)  
and CHEM 1111 General Chemistry II: Lab (1 hour)
- CHEM 2100 Organic Chemistry I (3 hours)  
and CHEM 2101 Organic Chemistry I: Lab (1 hour)
- CHEM 2110 Organic Chemistry II (3 hours)  
and CHEM 2111 Organic Chemistry II: Lab (1 hour)
- CHEM 3100 Biochemistry I (3 hours)  
and CHEM 3101 Biochemistry I: Lab (1 hour)
- CHEM 3300 Analytical Chemistry (3 hours)  
and CHEM 3301 Analytical Chemistry: Lab (1 hour)
- CHEM 3500 Physical Chemistry I (3 hours)  
and CHEM 3501 Physical Chemistry I: Lab (1 hour)
- CHEM 3510 Physical Chemistry II (3 hours)  
and CHEM 3511 Physical Chemistry II: Lab (1 hour)
- CHEM 4100 Inorganic Chemistry (3 hours)

- CHEM 4300 Instrumental Analysis (3 hours)  
and CHEM 4301 Instrumental Analysis: Lab (1 hour)
- CHEM 4400 Research Methods (3 hours)
- CHEM 4430 Bachelor of Science Senior Thesis (4 hours)
- MATH 1610 Calculus I (5 hours)
- MATH 1620 Calculus II (5 hours)
- MATH 2200 Statistics (3 hours)  
or STAT 3100 Inferential Statistics (3 hours)  
or PSYC 2750 Introduction to Measurement and Statistics (3 hours)
- PHYS 2030 University Physics I (3 hours)  
and PHYS 2031 University Physics I: Lab (1 hour)
- PHYS 2040 University Physics II (3 hours)  
and PHYS 2041 University Physics II: Lab (1 hour)

### Electives (6 hours)

6 credit hours are to be completed in CHEM courses at the 3000-level or 4000-level in addition to those included in the core curriculum. No more than three hours can be applied from Independent Research in Chemistry (CHEM 4700 or CHEM 4710).