

CHEMISTRY, BA

Degree: Bachelor of Arts (BA)

Major: Chemistry

Program Overview

The BA program in chemistry is intended for pre-professional students who plan careers in medicine, dentistry, veterinary medicine, pharmacy, or other fields for which a baccalaureate degree in chemistry provides appropriate training. BA majors may supplement their required courses with additional chemistry courses or may utilize the curriculum's flexibility to develop an interdisciplinary program of their choice. Many chemistry BA majors participate in undergraduate research in the Department of Chemistry (CHEM 397 / CHEM 398) or in other science departments, including those in the medical school.

Learning Outcomes

- Students will be able to demonstrate proficiency in the content knowledge of the main sub disciplines of chemistry including general, organic, analytical and physical.
- Students will be able to solve chemistry problems, and carry out, record and analyze the results of chemical experiments.
- Students will be able to utilize peer-reviewed scientific literature effectively, and evaluate technical articles critically.
- Students will be able to design and carry out experiments in a safety-focused manner.
- Students will be able to utilize ethically sound judgements when working with scientific results.

Teacher Licensure

Students admitted to Case Western Reserve University prior to Fall 2024 can declare a second major in Teacher Education and prepare for licensure in Adolescent to Young Adult (grades 7-12) in any one of the following areas: Integrated Language Arts (English major), Integrated Social Studies (history major), Integrated Mathematics (mathematics major), Life Science (biology major), or Physical Science (chemistry or physics major); or 2) Multi-Age (grades preK-12) in French, Spanish, or Latin. Eligible students interested in the teacher education program should refer to the General Bulletin for the year they entered Case Western Reserve University for the specific program requirements.

Undergraduate Policies

For undergraduate policies and procedures, please review the Undergraduate Academics section of the General Bulletin.

Accelerated Master's Programs

Undergraduate students may participate in accelerated programs toward graduate or professional degrees. For more information and details of the policies and procedures related to accelerated studies, please visit the Undergraduate Academics section of the General Bulletin.

Program Requirements

Students seeking to complete this major and degree program must meet the general requirements for bachelor's degrees and the Unified General Education Requirements. Students completing

this program as a secondary major while completing another undergraduate degree program do not need to satisfy the school-specific requirements associated with this major.

Code	Title	Credit Hours
Required Chemistry Courses:		
CHEM 105	Principles of Chemistry I	3
CHEM 106	Principles of Chemistry II	3
CHEM 113	Principles of Chemistry Laboratory	2
CHEM 223	Introductory Organic Chemistry I	3
or CHEM 323	Organic Chemistry I	
CHEM 224	Introductory Organic Chemistry II	3
or CHEM 324	Organic Chemistry II	
CHEM 233	Introductory Organic Chemistry Laboratory I	2
CHEM 234	Introductory Organic Chemistry Laboratory II	2-3
or CHEM 322	Laboratory Methods in Organic Chemistry	
CHEM 301	Introductory Physical Chemistry I	3
or CHEM 335	Physical Chemistry I	
CHEM 302	Introductory Physical Chemistry II	3
or CHEM 336	Physical Chemistry II	
CHEM 304	Quantitative Analysis Laboratory	2
CHEM 305	Introductory Physical Chemistry Laboratory	3
CHEM 310	Foundations of Analytical Chemistry	3
Total Credit Hours		32-33

Additional Required Courses

Code	Title	Credit Hours
PHYS 115	Introductory Physics I	4
or PHYS 121	General Physics I - Mechanics	
PHYS 116	Introductory Physics II	4
or PHYS 122	General Physics II - Electricity and Magnetism	
MATH 125	Math and Calculus Applications for Life, Managerial, and Social Sci I	4
or MATH 121	Calculus for Science and Engineering I	
MATH 126	Math and Calculus Applications for Life, Managerial, and Social Sci II	4
or MATH 122	Calculus for Science and Engineering II	
Total Credit Hours		16

Sample Plan of Study

First Year		Credit Hours
Fall		
CHEM 105	Principles of Chemistry I	3
CHEM 113	Principles of Chemistry Laboratory	2
MATH 121 or MATH 125	Calculus for Science and Engineering I or Math and Calculus Applications for Life, Managerial, and Social Sci I	4
Academic Inquiry Seminar, Breadth, or Elective course ^a		3
CHEM Elective		3
Credit Hours		15

Spring		
CHEM 106	Principles of Chemistry II	3
MATH 122 or MATH 126	Calculus for Science and Engineering II or Math and Calculus Applications for Life, Managerial, and Social Sci II	4
Academic Inquiry Seminar, Breadth, or Elective course ^a		3
CHEM Elective		3
Open Elective		3
Credit Hours		16

Second Year

Fall		
CHEM 223 or CHEM 323	Introductory Organic Chemistry I or Organic Chemistry I	3
CHEM 233	Introductory Organic Chemistry Laboratory I	2
Breadth, or Elective course ^a		3
CHEM Elective		3
Open Elective		3
Credit Hours		14

Spring		
CHEM 224 or CHEM 324	Introductory Organic Chemistry II or Organic Chemistry II	3
CHEM 234 or CHEM 322	Introductory Organic Chemistry Laboratory II or Laboratory Methods in Organic Chemistry	2
Breadth, or Elective course ^a		3
Open Electives		6
Credit Hours		14

Third Year

Fall		
CHEM 301 or CHEM 335	Introductory Physical Chemistry I or Physical Chemistry I	3
CHEM 304	Quantitative Analysis Laboratory	2
CHEM 310	Foundations of Analytical Chemistry	3
PHYS 115 or PHYS 121	Introductory Physics I or General Physics I - Mechanics	4
Breadth, or Elective course ^a		3
Credit Hours		15

Spring		
CHEM 302 or CHEM 336	Introductory Physical Chemistry II or Physical Chemistry II	3
CHEM 305	Introductory Physical Chemistry Laboratory	3
PHYS 116 or PHYS 122	Introductory Physics II or General Physics II - Electricity and Magnetism	4
Breadth, or Elective course ^a		3
CHEM Elective		3
Credit Hours		16

Fourth Year

Fall		
Breadth, or Elective course ^a		3

Open Electives	12
Credit Hours	15
Spring	
Breadth, or Elective course ^a	3
Open Electives	12
Credit Hours	15
Total Credit Hours	120

^a Unified General Education Requirement.