

CHEMISTRY, BS

Bachelor of Science in Chemistry (315000BS)

More on the Chemistry major (<https://www.uakron.edu/chemistry/undergraduate.dot>)

Program Description

Chemistry is an experimental science that seeks to understand the structure and function of molecules. Chemists synthesize new materials, and study their properties and how they interact with other compounds. The BS degrees offered by the department prepare students for independent laboratory work and research. The BA degree is less strongly focused on research and prepares students for professional degrees like medicine, dentistry and pharmacy.

Admission, Retention and Graduation

The student must maintain a minimum 2.00 grade point average. The student must obtain a grade of C- or better in all required chemistry courses.

The following information has official approval of **The Department of Chemistry** and **The Buchtel College of Arts & Sciences**, but is intended only as a supplemental guide. Official degree requirements are established at the time of transfer and admission to the degree-granting college. Students should refer to the Degree Progress Report (Stellic) which is definitive for graduation requirements. *Completion of this degree within the identified time frame below is contingent upon many factors, including but not limited to: class availability, total number of required credits, work schedule, finances, family, course drops/withdrawals, successfully passing courses, prerequisites, among others.* The transfer process is completed through an appointment with your academic advisor.

Three year accelerated option: for first time students who have earned credits for at least the first year of courses. Credits can be earned through qualifying scores on appropriate Advanced Placement (AP) exams or through [College Credit Plus Program \(CCP\)](#) courses. Credits for qualifying AP scores or [CCP](#) courses are determined by the appropriate academic department. Departments may assign varied course credit, depending on the student's score on an AP exam or [grade in a CCP](#) course. Students may also receive credit by examination or via placement tests, where appropriate.

Requirements Summary

Code	Title	Hours
	General Education Requirements (https://bulletin.uakron.edu/undergraduate/general-education/)	36
	College of Arts & Sciences Requirements	8
	Chemistry Requirements	40
	Physics Requirements	8
	Mathematics Requirements	15
	Advanced Chemistry Electives	7
	Additional Credits for Graduation *	6
Total Hours		120

* Bachelor's degrees require a minimum of 120 credit hours for graduation.

Recommended General Education Courses

Code	Title	Hours
Students pursuing a bachelor's degree must complete the following General Education coursework. Diversity courses may also fulfill major or Breadth of Knowledge requirements. Integrated and Applied Learning courses may also fulfill requirements in the major.		
Students are not required to enroll in the specific courses listed below. However, to facilitate successful degree completion, the academic department strongly encourages completion of the following recommendations.		
Academic Foundations		12
<i>Mathematics, Statistics and Logic: 3 credit hours</i>		
MATH 221	Analytic Geometry-Calculus I	
MATH 222	Analytic Geometry-Calculus II	
MATH 223	Analytic Geometry-Calculus III	
MATH 335	Introduction to Ordinary Differential Equations	
<i>Speaking: 3 credit hours</i>		
<i>Writing: 6 credit hours</i>		
Breadth of Knowledge		22
<i>Arts/Humanities: 9 credit hours</i>		
<i>Natural Sciences: 7 credit hours</i>		
CHEM 151	Principles of Chemistry I	
CHEM 152	Principles of Chemistry I Laboratory	
CHEM 153	Principles of Chemistry II	
PHYS 291 & PHYS 292	Elementary Classical Physics I and Elementary Classical Physics II	
<i>Social Sciences: 6 credit hours</i>		
Diversity		
Domestic Diversity		
Global Diversity		
Integrated and Applied Learning		2
<i>Select one class from one of the following subcategories:</i>		
Complex Issues Facing Society		
Capstone		
<i>Review the General Education Requirements page for detailed course listings.</i>		
Total Hours		36

College of Arts & Sciences Requirements

Code	Title	Hours
Degree requirements for this Bachelor of Science in Arts & Sciences include the demonstration of ability to use another language by completion of the first year of a foreign language.		
<i>1 Year Language Proficiency</i>		<i>8</i>
101 Beginning I		
102 Beginning II		
SLPA 222	Survey of Deaf Culture in America (American Sign Language option only)	
Students must also complete a minimum of 40 credits (excluding workshops) consisting of either:		

Upper-level (300/400) courses both in and outside of the student's major;

or other courses outside the major department approved by the student's major department chair (permission should be obtained prior to enrollment); these may not include workshops

Chemistry Requirements ¹

Code	Title	Hours
CHEM 151	Principles of Chemistry I	3
CHEM 152	Principles of Chemistry I Laboratory	1
CHEM 153	Principles of Chemistry II	3
CHEM 154	Qualitative Analysis	2
CHEM 263	Organic Chemistry Lecture I	3
CHEM 264	Organic Chemistry Lecture II	3
CHEM 265	Organic Chemistry Laboratory I	2
CHEM 266	Organic Chemistry Laboratory II	2
CHEM 313	Physical Chemistry Lecture I	3
CHEM 314	Physical Chemistry Lecture II	3
CHEM 380	Advanced Chemistry Laboratory I	2
CHEM 381	Advanced Chemistry Laboratory II	2
CHEM 423	Analytical Chemistry I	3
CHEM 424	Analytical Chemistry II	3
CHEM 472	Advanced Inorganic Chemistry	3
CHEM 480	Advanced Chemistry Laboratory III	2
Total Hours		40

¹ If a grade of less than C- is earned in a required chemistry course, the student must successfully repeat that course within a year.

Physics Requirements

Code	Title	Hours
PHYS 291	Elementary Classical Physics I	4
PHYS 292	Elementary Classical Physics II	4
Total Hours		8

Mathematics Requirements

Code	Title	Hours
MATH 221	Analytic Geometry-Calculus I	4
MATH 222	Analytic Geometry-Calculus II	4
MATH 223	Analytic Geometry-Calculus III	4
MATH 335	Introduction to Ordinary Differential Equations	3
Total Hours		15

Advanced Chemistry Electives

Code	Title	Hours
Select at least seven credits of the following:		7
CHEM 399	Internship in Chemistry ¹	
CHEM 401	Biochemistry Lecture I	
CHEM 402	Biochemistry Lecture II	
CHEM 463	Advanced Organic Chemistry	
CHEM 497	Honors Project in Chemistry ²	
CHEM 498	Special Topics in Chemistry ²	

CHEM 499	Research Problems in Chemistry ²	
PLYS 403	Polymer Chemistry	
PLYS 404	Polymer Physics	
PLYS 405	Polymer Science Laboratory	
Total Hours		7

¹ May be repeated for a total of six credits.

² May be repeated for a total of eight credits.

Recommended Sequence

1st Year

Fall Semester	Hours
Writing Requirement	3
CHEM 151 Principles of Chemistry I	3
CHEM 152 Principles of Chemistry I Laboratory	1
MATH 149 Precalculus Mathematics	4
Select one of the following:	3-4
Beginning Language I	
SLPA 101 American Sign Language I	
Hours	14-15

Spring Semester

Writing Requirement	3
Speaking Requirement	3
CHEM 153 Principles of Chemistry II	3
CHEM 154 Qualitative Analysis	2
MATH 221 Analytic Geometry-Calculus I	4
Select one of the following:	4-3
Beginning Language II	
SLPA 102 American Sign Language II	
Hours	19-18

2nd Year

Fall Semester	Hours
CHEM 263 Organic Chemistry Lecture I	3
CHEM 265 Organic Chemistry Laboratory I	2
MATH 222 Analytic Geometry-Calculus II	4
PHYS 291 Elementary Classical Physics I	4
General Elective	3
Hours	16

Spring Semester

CHEM 264 Organic Chemistry Lecture II	3
CHEM 266 Organic Chemistry Laboratory II	2
MATH 223 Analytic Geometry-Calculus III	4
PHYS 292 Elementary Classical Physics II	4
General Elective	3
Hours	16

3rd Year

Fall Semester	Hours
CHEM 313 Physical Chemistry Lecture I	3
CHEM 380 Advanced Chemistry Laboratory I	2
CHEM 423 Analytical Chemistry I	3
MATH 335 Introduction to Ordinary Differential Equations	3

	Social Science Requirement ²	3
	Humanities Requirement ²	3
	Hours	17
Spring Semester		
CHEM 424	Analytical Chemistry II	3
CHEM 314	Physical Chemistry Lecture II	3
CHEM 381	Advanced Chemistry Laboratory II	2
	Arts Requirement ²	3
	Social Science Requirement ²	3
	Hours	14
4th Year		
Fall Semester		
CHEM 472	Advanced Inorganic Chemistry	3
CHEM 480	Advanced Chemistry Laboratory III	2
	Upper Level Chemistry Electives ¹	4
	Arts/Humanities Requirement ²	3
	Hours	12
Spring Semester		
	Upper Level Chemistry Electives ¹	3
	Complex Issues Requirement ^{2,3}	3
	Domestic Diversity Requirement ^{2,3}	3
	Global Diversity Requirement ^{2,3}	3
	Hours	12
	Total Hours	120

¹ Students pursuing the Bachelor of Science in Chemistry must take at least 7 credits to fulfill the Upper Level Chemistry course requirements from: CHEM 399 Internship in Chemistry, CHEM 401/402 Biochem I/II, CHEM 463 Advanced Organic Chemistry, CHEM 497 Honors Project in Chemistry, CHEM 498 Special Topics: Chemistry, CHEM 499 Research Problems, PHYS 481 Methods of Mathematical Physics I, PLYS 403 Polymer Chemistry, PLYS 404 Polymer Physics, PLYS 405 Polymer Science Lab.

² These courses fulfill General Education requirements. Unless a course is specified, refer to the General Education guide at <https://bulletin.uakron.edu/undergraduate/general-education/>. It is recommended that General Education courses be selected to satisfy major or minor requirements, or to double dip between multiple tiers (i.e. Chemistry majors are encouraged to take 3850:100 Introduction to Sociology to satisfy the Domestic Diversity Requirement, as well as part of the Social Science Requirement).

³ If requirement has been satisfied by previous coursework, credits should still be filled as general electives.