CHEMISTRY, BACHELOR OF SCIENCE

To obtain a B.S. with a major in Chemistry, a student must fulfill university, college, and departmental requirements. Minimum hour requirements follow:

- 46 hours of University General Education courses
- 12 hours college breadth requirement
- 42 hours of major courses
- 19 hours of cognate courses
- Elective hours as required to total 120 hours

TOTAL HOURS: 120

Requirements

A B.S. degree in chemistry requires a minimum of 42 credit hours of approved chemistry courses.

Code	Title	Credits
Required Chemistry Courses		
CHEM 1180 & CHEM 1184	GENERAL CHEMISTRY I and GENERAL CHEMISTRY I LABORATORY	4
CHEM 1190 & CHEM 1194	GENERAL CHEMISTRY II and GENERAL CHEMISTRY II LABORATORY	4
CHEM 2250	ORGANIC CHEMISTRY I	3
CHEM 2260 & CHEM 2274	ORGANIC CHEMISTRY II and ORGANIC CHEMISTRY LABORATORY	5
CHEM 2400 & CHEM 2404	QUANTITATIVE ANALYSIS and QUANTITATIVE ANALYSIS LAB	4
CHEM 2500	INTRODUCTION TO INORGANIC CHEMISTRY	3
CHEM 3350 & CHEM 3354	PHYSICAL CHEMISTRY I and PHYSICAL CHEMISTRY I LABORATORY	4
CHEM 3360 & CHEM 3364	PHYSICAL CHEMISTRY II and PHYSICAL CHEMISTRY II LABORATORY	4
CHEM 4400 & CHEM 4404	INSTRUMENTAL ANALYSIS and INSTRUMENTAL ANALYSIS LABORATORY	4
Advanced Chemistry Courses		
Select 7 credit hours from the advanced courses (listed below)		7
Total Credits		**42**

Advanced Courses

Code	Title	Credits
Analytical		
CHEM 3030	ENVIRONMENTAL CHEMISTRY	3
CHEM 3424	SPECTROMETRIC CHARACTERIZATIONS	1
Biochemistry		
CHEM 4610	BIOCHEMISTRY OF METABOLISM	4
CHEM/BIOL 4650	BIOCHEMISTRY I (with the following lab)	3
CHEM/BIOL 4654	BIOCHEMISTRY I LABORATORY	1
CHEM/BIOL 4660	BIOCHEMISTRY II (with the following lab)	3
CHEM/BIOL 4664	BIOCHEMISTRY II LABORATORY	1
CHEM 4670	PROTEIN PURIFICATION AND CHARACTERIZATION	2
Inorganic		
CHEM 3514	INORGANIC PREPARATIONS	1
CHEM 4500	ADVANCED INORGANIC CHEMISTRY	3
CHEM 4510	SOLID STATE INORGANIC CHEMISTRY	3
CHEM 4540	GEOCHEMISTRY	3
Medicinal		
CHEM 3710	ESSENTIALS OF MEDICINAL CHEMISTRY	3
Nuclear		
CHEM 4320	NUCLEAR CHEMISTRY	3
Organic		
CHEM 3210	INTRODUCTION TO MOLECULAR MODELING	3
CHEM 4230	ADVANCED ORGANIC CHEMISTRY - SYNTHESIS	3
CHEM 4240	ADVANCED ORGANIC CHEMISTRY - MECHANISM	3
CHEM 4250	ADVANCED ORGANIC CHEMISTRY: MECHANISMS AND MODELING	4
Polymer		
CHEM 4310	POLYMER CHEMISTRY	3
Research		
CHEM 4950	CHEMISTRY PROJECTS	1
CHEM 4960	CHEMISTRY PROBLEMS	1-3
Internship		
CHEM 4810	CHEMISTRY INTERNSHIP	1-6
Special Topics		
CHEM 4930	SPECIAL TOPICS IN CHEMISTRY	1-3

Required Cognate Courses:

Code	Title	Credits
MATH 1950	CALCULUS I	5
MATH 1960	CALCULUS II	4
PHYS 2110	GENERAL PHYSICS I - CALCULUS LEVEL	4
or PHYS 1110	GENERAL PHYSICS I	
PHYS 1154	GENERAL PHYSICS LABORATORY I	1
PHYS 2120	GENERAL PHYSICS-CALCULUS LEVEL	4
or PHYS 1120	GENERAL PHYSICS II	
PHYS 1164	GENERAL PHYSICS LABORATORY II	1
Total Credits		**19**

Code	Title	Credits
Recommended but not required:		
MATH 1970	CALCULUS III	4

To graduate with an ACS certified degree, see your chemistry advisor for proper course selection.

Freshman		
Fall		**Credits**
CHEM 1180 & CHEM 1184	GENERAL CHEMISTRY I and GENERAL CHEMISTRY I LABORATORY (*)	4
CMST 1110 or CMST 2120	PUBLIC SPEAKING FUNDS or ARGUMENTATION AND DEBATE	3
ENGL 1150	ENGLISH COMPOSITION I (**)	3
MATH 1950	CALCULUS I (***)	5

*CHEM 1180: Please see the catalog for the most up-to-date prerequisites. Must take CHEM 1184 concurrently.

**ENGL 1150: Requires appropriate English placement.

***MATH 1950: Requires appropriate Math placement. MATH 1950 is part of the BS Cognate.

	Credits	**15**
Spring		
CHEM 1190 & CHEM 1194	GENERAL CHEMISTRY II and GENERAL CHEMISTRY II LABORATORY (*)	4
ENGL 1160	ENGLISH COMPOSITION II (**)	3
MATH 1960	CALCULUS II (***)	4
Humanities-Fine Arts/ Global Diversity Course		3

*CHEM 1190 must be taken concurrently with CHEM 1194. See the catalog for the most up-to-date prerequisites.

**ENGL 1160: Requires ENGL 1150 or 1154, or appropriate English placement.

***MATH 1960 requires MATH 1950. MATH 1960 is part of the BS Cognate.

	Credits	**14**
Sophomore		
Fall		
CHEM 2250	ORGANIC CHEMISTRY I (*)	3
CHEM 2400 & CHEM 2404	QUANTITATIVE ANALYSIS and QUANTITATIVE ANALYSIS LAB (**)	4
HIST 1000	WORLD HISTORY TO 1500 (or Minor/2nd Major COURSE***)	3
Social Science / US Diversity Course		3
Elective or Minor/2nd Major Course		3
***CAS Requirement		
	Credits	**16**
Spring		
CHEM 2260 & CHEM 2274	ORGANIC CHEMISTRY II and ORGANIC CHEMISTRY LABORATORY (*)	5
CHEM 2500	INTRODUCTION TO INORGANIC CHEMISTRY (**)	3
Social Science		3
Elective or Minor/2nd Major Course		3
Elective^		1

^Students need a minimum of 120 credits to graduate. Electives may be needed to reach this minimum.

	Credits	**15**
Junior		
Fall		
HIST 1010	WORLD HISTORY SINCE 1500 (or Minor/2nd Major Course*)	3
PHYS 2110 or PHYS 1110	GENERAL PHYSICS I - CALCULUS LEVEL (**) or GENERAL PHYSICS I	4
PHYS 1154	GENERAL PHYSICS LABORATORY I	1
Advanced Chemistry Elective***		3
Humanities-Fine Arts Course		3

*CAS Requirement

**PHYS 2110/1110 & PHYS 1154 is part of the BS Cognate.

***Must take 7 credit hours of Advanced Chemistry electives. See catalog for options.

	Credits	**14**
Spring		
PHYS 2120 or PHYS 1120	GENERAL PHYSICS-CALCULUS LEVEL (*) or GENERAL PHYSICS II	4
PHYS 1164	GENERAL PHYSICS LABORATORY II	1
Advanced Chemistry Elective**		4
Social Science***		3
Humanities/Fine Arts Course^		3
Elective^^		1

*PHYS 2120/1120 & PHYS 1164 is part of the BS Cognate.

**Must take 7 credit hours of Advanced Chemistry electives. See catalog for options.

***Social Science course must be in a 2nd discipline.

^Humanities/Fine Arts Course must be from 2nd discipline.

^^120 credits are required for a bachelor's degree. Electives may be needed to reach that minimum.

	Credits	**16**
Senior		
Fall		
CHEM 3350 & CHEM 3354	PHYSICAL CHEMISTRY I and PHYSICAL CHEMISTRY I LABORATORY	4
Humanities & Fine Arts Course or Minor/2nd Major Course**		3
Elective or Minor/2nd Major Course		3
Elective or Minor/2nd Major Course		3
Elective or Minor/2nd Major Course		3

**CAS Requirement: Additional HFA must come from 3rd discipline.

	Credits	**16**
Spring		
CHEM 3360 & CHEM 3364	PHYSICAL CHEMISTRY II and PHYSICAL CHEMISTRY II LABORATORY	4
CHEM 4400 & CHEM 4404	INSTRUMENTAL ANALYSIS and INSTRUMENTAL ANALYSIS LABORATORY	4
NSCI 3940	WRITING IN CHEMISTRY (*)	2
Additional Social Science or Minor/2nd Major Course**		3
Elective^		1

*NSCI 3940: Requires ENGL 1160, and CHEM 2400 or 2500

**CAS Requirement: Additional Social Science must come from a 3rd discipline.

^120 credits minimum are required for a bachelor's degree. Electives may be needed to reach this minimum.

	Credits	**14**
	Total Credits	**120**

This roadmap is a suggested plan of study and does not replace meeting with an advisor. Please note that students may need to adjust the actual sequence of courses based on course availability. Please consult an advisor in your major program for further guidance.

This plan is not a contract and curriculum is subject to change

Additional Information About this Plan:

University Degree Requirements: The minimum number of hours for a UNO undergraduate degree is 120 credit hours. Please review the requirements for your specific program to determine all requirements for the program. In order to graduate on-time (four years for an undergraduate degree), you need to take 30 hours each year.

Placement Exams: For Math, English, Foreign Language, a placement exam may be required. More information on these exams can be found at https://www.unomaha.edu/enrollment-management/testing-center/placement-exams/information.php

**Transfer credit or placement exam scores may change suggested plan of study

GPA Requirements: 2.0