CHEMISTRY, BACHELOR OF SCIENCE WITH A CONCENTRATION IN MEDICINAL CHEMISTRY

To obtain a B.S. with a major in Chemistry and a concentration in Medicinal Chemistry, a student must fulfill university, college, and departmental requirements.

Chemistry, Bachelor of Science with a Concentration in Medicinal Chemistry Requirements

Code	Title	Credits
GENERAL EDUCATION REQUIREMENTS - 34 Hours Required		
Minimum of "C-"required		
Fundamental Skills		**15**
Writing – 6 hrs.		
ENGL 1150	ENGLISH COMPOSITION I	
ENGL 1160	COLLEGE RESEARCH AND INFORMATION LITERACY	
Oral Communication – 3 hrs.		
CMST 1110	PUBLIC SPEAKING FUNDS	
or CMST 2120	ARGUMENTATION AND DEBATE	
Quantitative Literacy – 3 hrs.		
MATH 1120	INTRODUCTION TO MATHEMATICAL AND COMPUTATIONAL THINKING	
or MATH 1130	QUANTITATIVE LITERACY	
or MATH 1140	QUANTITATIVE REASONING FOR HEALTHCARE PROFESSIONALS	
or MATH 1300	COLLEGE ALGEBRA WITH SUPPORT	
Data Literacy – 3 hrs.		
Select one from the following:		
STAT 1100	DATA LITERACY AND VISUALIZATION	
STAT 1530	ELEMENTARY STATISTICS	
Until Fall 2028, students can satisfy this requirement with an approved data literacy course, or any approved natural or social science general education course.		
Breadth of Knowledge		**13**
Social Science – 3 hrs.		
Humanities – 3 hrs.		
Natural & Physical Science (must complete a lab) – 4 hrs.		
Arts – 3 hrs.		
Individual and Social Responsibility		**6**
Cultural Knowledge – 3 hrs.		
Civic Knowledge and Engagement – 3 hrs.		
MAJOR REQUIREMENTS		
**Course will satisfy UNO's General Education requirement		
^Course requires pre-requisite(s)		
Chemistry Major with a Concentration in Medicinal Chemistry - 70-71 Hours Required		
Required Chemistry Coursework		**34**
CHEM 1180 & CHEM 1184	GENERAL CHEMISTRY I and GENERAL CHEMISTRY I LABORATORY (** ^)	
CHEM 1190 & CHEM 1194	GENERAL CHEMISTRY II and GENERAL CHEMISTRY II LABORATORY (^)	
CHEM 2250	ORGANIC CHEMISTRY I (^)	
CHEM 2260 & CHEM 2274	ORGANIC CHEMISTRY II and ORGANIC CHEMISTRY LABORATORY (^)	
CHEM 2400 & CHEM 2404	QUANTITATIVE ANALYSIS and QUANTITATIVE ANALYSIS LAB (^)	
CHEM 2500	INTRODUCTION TO INORGANIC CHEMISTRY (^)	
CHEM 3350 & CHEM 3354	PHYSICAL CHEMISTRY I and PHYSICAL CHEMISTRY I LABORATORY (^)	
CHEM 3710	ESSENTIALS OF MEDICINAL CHEMISTRY (^)	
CHEM/BIOL 4650	BIOCHEMISTRY I (^ with the following lab)	
CHEM/BIOL 4654	BIOCHEMISTRY I LABORATORY (^)	
CHEM 4900	SENIOR ASSESSMENT IN CHEMISTRY	
Additional Lecture		
Select one of the following:		3-4
CHEM 3210	INTRODUCTION TO MOLECULAR MODELING (^)	
CHEM 4230	ADVANCED ORGANIC CHEMISTRY - SYNTHESIS (^)	
CHEM 4240	ADVANCED ORGANIC CHEMISTRY - MECHANISM (^)	
CHEM 4250	ADVANCED ORGANIC CHEMISTRY: MECHANISMS AND MODELING (^)	
CHEM/BIOL 4660	BIOCHEMISTRY II (^ Must take CHEM 4664 as the required additional lab.)	
Additional Lab		
Select one of the following:		1
CHEM 3424	SPECTROMETRIC CHARACTERIZATIONS (^)	
CHEM/BIOL 4664	BIOCHEMISTRY II LABORATORY (Must take CHEM 4660 for required additional lecture)	
CHEM 4950	CHEMISTRY PROJECTS	
Required Biology Courses		**9**
BIOL 1450	BIOLOGY I (**)	
BIOL 2140	GENETICS (^)	
ADVANCED COURSEWORK: Select 4 additional credits from the following options in chemistry and biology:		**4**
Analytical		
CHEM 3030	ENVIRONMENTAL CHEMISTRY (^)	
CHEM 3424	SPECTROMETRIC CHARACTERIZATIONS (^)	
CHEM 4400	INSTRUMENTAL ANALYSIS (^)	
CHEM 4404	INSTRUMENTAL ANALYSIS LABORATORY (^)	
Biochemistry		
CHEM/BIOL 4660	BIOCHEMISTRY II (^ with the following lab)	
CHEM/BIOL 4664	BIOCHEMISTRY II LABORATORY (^)	

CHEM 4670	PROTEIN PURIFICATION AND CHARACTERIZATION (^)
Chemistry Education	
CHEM 3720	CHEMISTRY TEACHING STRATEGIES
Inorganic	
CHEM 3514	INORGANIC PREPARATIONS (^)
CHEM 4500	ADVANCED INORGANIC CHEMISTRY (^)
CHEM 4510	SOLID STATE INORGANIC CHEMISTRY (^)
CHEM 4540	GEOCHEMISTRY (^)
Nuclear	
CHEM 4320	NUCLEAR CHEMISTRY (^)
Organic	
CHEM 3210	INTRODUCTION TO MOLECULAR MODELING (^)
CHEM 4230	ADVANCED ORGANIC CHEMISTRY - SYNTHESIS (^)
CHEM 4240	ADVANCED ORGANIC CHEMISTRY - MECHANISM (^)
CHEM 4250	ADVANCED ORGANIC CHEMISTRY: MECHANISMS AND MODELING (^)
Physical Chemistry	
CHEM 3360	PHYSICAL CHEMISTRY II (^)
CHEM 3364	PHYSICAL CHEMISTRY II LABORATORY (^)
Polymer	
CHEM 4310	POLYMER CHEMISTRY (^)
Research	
CHEM 4950	CHEMISTRY PROJECTS (^)
CHEM 4960	CHEMISTRY PROBLEMS (^)
Internship	
CHEM 4810	CHEMISTRY INTERNSHIP (^)
Special Topics	
CHEM 4930	SPECIAL TOPICS IN CHEMISTRY (^)
Biology	
BIOL 3020	MOLECULAR BIOLOGY OF THE CELL
BIOL 3240	INTRODUCTION TO IMMUNOLOGY
BIOL 3830	BIOLOGY OF PATHOGENIC MICROORGANISMS
BIOL 4130	MOLECULAR GENETICS
BIOL 4140	CELLULAR BIOLOGY
BIOL 4450	VIROLOGY (with or without the following lab)
BIOL 4454	VIROLOGY LABORATORY
BIOL 4640	MOLECULAR MICROBIOLOGY
BIOL 4730	VERTEBRATE ENDOCRINOLOGY
BIOL 4850	DEVELOPMENTAL BIOLOGY
BIOL 4860	COMPARATIVE GENOMICS
Other Required Coursework*	**9**
MATH 1950	CALCULUS I (^)
MATH 1960	CALCULUS II
*MATH 1970, Calculus III, is recommended but not required	
Select one of the following sequences	**10**
Sequence A	
PHYS 2110 & PHYS 1154	GENERAL PHYSICS I - CALCULUS LEVEL and GENERAL PHYSICS LABORATORY I (** ^)
PHYS 2120 & PHYS 1164	GENERAL PHYSICS II-CALCULUS LEVEL and GENERAL PHYSICS LABORATORY II (^)
Sequence B	
PHYS 1110 & PHYS 1154	PHYSICS FOR LIFE SCIENCE I and GENERAL PHYSICS LABORATORY I (** ^)
PHYS 1120 & PHYS 1164	PHYSICS FOR LIFE SCIENCE II and GENERAL PHYSICS LABORATORY II (^)
To graduate with an ACS certified degree, see your chemistry advisor for proper course selection.	
College Breadth (choose one option)	**15-30+**
Option 1: Complete any UNO minor or undergraduate certificate - 15+ hours	
Option 2: Additional General Education Requirements - 18+ hours	
Additional quantitative literacy - 3 hours	
Additional Social Science Gen. Ed. from another Discipline - 3 hours	
Additional Humanities Gen. Ed. from another Discipline - 3 hours	
HIST 1000 and HIST 1010 - 6 hours	
Additional Nat. and Physical Science w/ or without Lab - 3-5 hours	
Option 3: CAS comprehensive major (50+ hours) OR any second UNO major (30+ hours)	
Bachelor of Science Requirement	**0**
See major.	
ELECTIVES	
Elective hours as required to reach a total of 120 hours	

Chemistry, Bachelor of Science with a Concentration in Medicinal Chemistry Four-year Plan

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
Attend Durango Days; other campus events.		
Set up a Handshake account and take the Pathway U career assessment.		
Attend the Student Involvement & Volunteer Fair to explore student organizations.		
Make advising appointment for spring: Sept-Oct.		
Work with your advisor to develop your Pathway in Stellic.		
	Credits	**15**

Spring		
CHEM 1190 & CHEM 1194	GENERAL CHEMISTRY II and GENERAL CHEMISTRY II LABORATORY	4
ENGL 1160	COLLEGE RESEARCH AND INFORMATION LITERACY	3
MATH 1960	CALCULUS II	4
General Education Course or Elective		3

Attend campus events such as major exploration week to get an idea of interests and career paths.		
Schedule a resume review with UNO Career Services.		
Visit faculty office hours and ask about undergraduate research opportunities.		
Make advising appointment for summer and fall: February – March.		
	Credits	**14**
Summer		
PHYS 2110 or PHYS 1110	GENERAL PHYSICS I - CALCULUS LEVEL or PHYSICS FOR LIFE SCIENCE I	4
PHYS 1154	GENERAL PHYSICS LABORATORY I	1
	Credits	**5**
Sophomore		
Fall		
CHEM 2250	ORGANIC CHEMISTRY I	3
CHEM 2400 & CHEM 2404	QUANTITATIVE ANALYSIS and QUANTITATIVE ANALYSIS LAB	4
General Education Course or Elective		3
General Education Course or Elective		3
General Education Course or Elective		2
Attend the Career & Internship Fair to start networking with employers.		
Look for volunteer, research, or part-time work to gain experience.		
Join a student organization or club related to your field or interests.		
Make advising appointment for spring: Sept. - Oct.		
	Credits	**15**
Spring		
CHEM 2260 & CHEM 2274	ORGANIC CHEMISTRY II and ORGANIC CHEMISTRY LABORATORY	5
CHEM 2500	INTRODUCTION TO INORGANIC CHEMISTRY	3
General Education Course or Elective		3
General Education Course or Elective		3
Attend a career fair for informational and networking purposes.		
Update your resume and LinkedIn profile with new experiences.		
Investigate and apply for summer internships, research, or study abroad programs.		
Make advising appointment for summer and fall: February – March.		
	Credits	**14**
Summer		
PHYS 2120 or PHYS 1120	GENERAL PHYSICS II-CALCULUS LEVEL or PHYSICS FOR LIFE SCIENCE II	4
PHYS 1164	GENERAL PHYSICS LABORATORY II	1
	Credits	**5**
Junior		
Fall		
CHEM 3350 & CHEM 3354	PHYSICAL CHEMISTRY I and PHYSICAL CHEMISTRY I LABORATORY	4
OR		
CHEM 4650 & CHEM 4654	BIOCHEMISTRY I and BIOCHEMISTRY I LABORATORY	
BIOL 1450	BIOLOGY I	5
General Education Course or Elective		3
General Education Course or Elective		3
Apply for a paid internship or research assistantship.		
Attend a mock interview workshop or use online interview tools with Career Services.		
Start researching and visiting graduate programs or professional schools.		
Visit Career Center, continue updating resume.		
Make advising appointment for spring: Sept-Oct.		
	Credits	**15**
Spring		
CHEM 3710	ESSENTIALS OF MEDICINAL CHEMISTRY	3
BIOL 2140	GENETICS	4
Additional Chemistry Lecture		3-4
Additional Chemistry Lab		1
General Education Course or Elective		2-3
Request letters of recommendation from faculty for jobs or grad school.		
Attend the All-Majors Career Fair with a plan to network.		
Meet with your advisor or submit for a graduation check-in to review remaining degree requirements.		
Make advising appointment for summer and fall: February – March.		
	Credits	**13-15**
Senior		
Fall		
CHEM 4650 & CHEM 4654	BIOCHEMISTRY I and BIOCHEMISTRY I LABORATORY	4
OR		
CHEM 3350 & CHEM 3354	PHYSICAL CHEMISTRY I and PHYSICAL CHEMISTRY I LABORATORY	
General Education Course or Elective		3
General Education Course or Elective		3
General Education Course or Elective		2
Check in with Career Center for networking tips.		
Finalize graduate school applications or job search strategy.		
Attend a career fair and start applying for full-time jobs.		
Prepare for interviews and salary negotiations with Career Services.		
Make advising appointment for spring: Sept. - Oct.		
	Credits	**12**
Spring		
CHEM 4900	SENIOR ASSESSMENT IN CHEMISTRY	0
Advanced Course in Biology or Chemistry (see list of approved options)		4
General Education Course or Elective		3
General Education Course or Elective		3
General Education Course or Elective		2
Complete your final advising check before graduation.		
Polish your resume, cover letters, and LinkedIn profile.		
Stay connected by joining alumni networks and professional organizations.		
Apply for graduation via MavLink.		
	Credits	**12**
	Total Credits	**120-122**

College Breadth: Students should plan on using at least 15 hours of "Electives" to fulfill Option 1, 2, or 3, of the College of Arts and Sciences' breadth requirement.

Upper Level Credits: Students need 27 upper-level credits throughout the degree with at least 18 upper-level credits within the major. Electives may need to be selected at the 3000-4000 level to reach these minimums.

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, World 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

Note: This plan provides a general guide, but your specific courses, experiences, and career goals may differ. Work with your academic advisor to ensure you're meeting degree requirements and consult with career advisors to explore internships, research opportunities, and post-graduation plans. Regular check-ins will help you stay on track and make the most of your time at UNO!