Bachelor of Science in Chemistry (ACS Certified Program)

Required 120 credits (36 of which must be numbered 300 or above and 30 of which must be from UND) including:

I. Essential Studies Requirements (see University ES guidelines and course listings).

II. The Following Curriculum:

Major Requirements—53 hours of Chemistry and Biochemistry including:

Freshman Year		
First Semester		**Credits**
CHEM 101	Orientation to Chemistry	1
CHEM 221 & 221L or CHEM 121 ***and*** CHEM 121L	Fundamentals of Chemistry - Concepts [7] or General Chemistry I ***and*** General Chemistry I Laboratory	4
ENGL 110	College Composition I	3
MATH 165	Calculus I [1]	4
Essential Studies and Other Electives		3
	Credits	**15**
Second Semester		
CHEM 254 & 254L or CHEM 122 ***and*** CHEM 122L	Inorganic Chemistry I [7] or General Chemistry II ***and*** General Chemistry II Laboratory	4
ENGL 130	Composition II: Writing for Public Audiences	3
MATH 166	Calculus II	4
Essential Studies and Other Electives		3
	Credits	**14**
Sophomore Year		
First Semester		
CHEM 333 & 333L	Analytical Chemistry and Analytical Chemistry Laboratory	4
CHEM 341 & 341L	Organic Chemistry I and Organic Chemistry I Laboratory	4
CHEM 361	Problem Solving in Organic Chemistry I	1
PHYS 251	University Physics I	4
MATH 265	Calculus III	4
	Credits	**17**
Second Semester		
CHEM 342 & 342L	Organic Chemistry II and Organic Chemistry II Laboratory	4
CHEM 362	Problem Solving in Organic Chemistry II	1
PHYS 252	University Physics II	4
Essential Studies and Other Electives [2]		6
	Credits	**15**
Junior Year		
First Semester		
CHEM 454 & 454L	Inorganic Chemistry II and Inorganic Chemistry II Laboratory	4
CHEM 443	Instrumental Analysis III - Chromatography/Mass Spectrometry [3]	2
CHEM 470R	Thermodynamics Kinetics Recitation	1
CHEM 470	Thermodynamics Kinetics	3
First Semester of a Foreign Language [5]		4
Essential Studies and Other Electives [2,4]		2
	Credits	**16**
Second Semester		
CHEM 441	Instrumental Analysis I - Spectroscopy [3]	2
CHEM 471	Quantum Mechanics Spectroscopy [6]	3
CHEM 471R	Quantum Mechanics Spectroscopy Recitation [6]	1
CHEM 462	Physical Chemistry Laboratory	3
BIMD 301	Biochemistry	3
Second Semester of a Foreign Language [5]		4
	Credits	**16**
Senior Year		
First Semester		
CHEM 492	Senior Research	3
Essential Studies and Other Electives [2,4]		9
	Credits	**12**
Second Semester		
CHEM 442	Instrumental Analysis II - Electrochemistry [3]	2
CHEM 495	Chemistry Capstone	3
Essential Studies and Other Electives [4]		10
	Credits	**15**
	Total Credits	**120**

1. If a student is not ready for MATH 165 Calculus I, the math sequence may be moved back one semester and MATH 107 Precalculus (also MATH 103 College Algebra, if needed) should be taken in the first semester.
2. Suggested electives are courses in Physics, Mathematics, Biology, Languages, Computer Science, Chemical Engineering, Business Management, and Speech.
3. Chem 44X (CHEM 441 Instrumental Analysis I - Spectroscopy, CHEM 442 Instrumental Analysis II - Electrochemistry and CHEM 443 Instrumental Analysis III - Chromatography/Mass Spectrometry) courses are offered within a regular, two-year cycle. Students can take Chem 44X courses in any order. To complete the degree in four years, students must begin taking the first available Chem 44x course of the cycle in their Junior year (at latest).
4. Other undergraduate and graduate level courses in Chemistry may be taken as electives.
5. Two semesters of a foreign language are required. If a student wishes to pursue Study Abroad, taking language courses earlier is recommended.
6. Chem 471 and 471R are offered in spring even years.
7. Chem 254 is required. Students who take Chem 121 and 121L and Chem 122 and Chem 122L are required to take Chem 254 during the Spring semester of their Sophomore year.

Teacher Licensure

Through a partnership with the College of Education and Human Development, the Department of Teaching, Leadership & Professional Practice, students may seek secondary licensure in Chemistry. The following program of study must be completed:

I. Chemistry Coursework

1. Chemistry Courses required for a Chemistry degree (B.S. in Chemistry or B.S. with major in Chemistry), including level-II proficiency (two semesters) in a foreign language.
2. Essential studies coursework.

II. Admission to the Secondary Program i.e., completion of preadmission courses. See College of Education and Human Development for admission and licensing requirements (https://catalog.und.edu/undergraduateacademicinformation/departmentalcoursesprograms/chemistry/chem-bs/public.courseleaf.com/undergraduateacademicinformation/departmentalcoursesprograms/teachingandlearning/tl-bsed-se/). Including courses:

T&L 250 Introduction to Education

T&L 251 Understanding Individuals with Different Abilities

III. The program in Secondary Education (see Department of Teaching, Leadership & Professional Practice (https://und-public.courseleaf.com/undergraduateacademicinformation/departmentalcoursesprograms/teachingandlearning/tl-bsed-se/))

Chemistry majors seeking secondary licensure must have an advisor in both the Chemistry Department and the Department of Teaching, Leadership & Professional Practice.