

FREQUENTLY ASKED QUESTIONS

Which Chemistry track should I select?

Students choosing chemistry for their major can follow one of three tracks:

B.S. in Chemistry. American Chemical Society (ACS) Certified Degree. This degree is recommended for students who want the best preparation for a chemistry career, including graduate school. A strong high-school background in chemistry and calculus is recommended.

B.S. with a Major in Chemistry, Physical Science Option. This track is also recommended for students who want a chemistry career and/or further study in graduate school. However, this track has fewer requirements than the ACS Certified path. This option is a good fit for students who are considering Teaching Certification, double majors, or who want to have a minor in another program. Students choosing this option can easily fit Pre-med course requirements around the curriculum leading to this degree.

B.S. with a Major in Chemistry, Biochemistry Option. This track is recommended for pre-health and pre-med students or who want to have a second major. Because of the lower level of math required, this track is not suggested for students who are considering graduate programs in chemistry.

Which Math courses should I take?

If you are pursuing a B.S. degree in Chemistry ("ACS track") or a B.S. degree with a Major in Chemistry, Physical Science option, you need to take Calculus I, II and III (Math, 165, 166 and 265).

Students on the Biochemistry emphasis track need to take Math 146, Applied Calculus I; however, the higher level course Math 165, Calculus I, is recommended instead as this path opens more career options.

Which Math course can I take based on my ACT score?

ACT Math sub-scores 0-18: may enroll in Math 92
ACT Math sub-scores 19-20: may enroll in Math 93
ACT Math sub-scores 21-25: may enroll in Math 103, 105, or 107

ACT Math sub-scores 26-27: may enroll in Math 103, 105, 107, 146, or 208*

ACT Math sub-scores 28-36: may enroll in Math 103, 105, 107, 146, 165 or 208*

*Math 208 is not recommended for first semester freshmen.

Another option is to take the COMPAS placement test: <http://und.edu/testing-center/compass-exam.cfm>, which can be also taken remotely. It is recommended to take the test before Orientation. The UND Testing Services office phone number is 701.777.4157.

Can I obtain a scholarship?

Various scholarships are listed on the on the undergraduate website <https://arts-undergraduate-information.cfm>. under the scholarship tab.

How long is required to complete a Chemistry major?

All chemistry major tracks can be completed in a four-year plan.

How can you ensure you are well prepared coming from high school?

Students are recommended to take high school Chemistry, Physics and Mathematics courses at the highest possible levels.

If I am a Pre-med student, why should I pursue a Chemistry degree instead of another BS degree, particularly one in Biology?

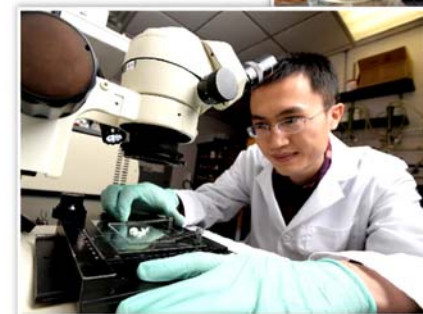
Being a Pre-med student, you will be expected to take many biology courses. These provide a biology background sufficient for application to Medical School. Having a chemistry degree gives you an opportunity to understand biochemistry and other biology- and medicine-related topics from the chemistry point of view. Biology majors will lack this broader understanding. Earning a BS in Chemistry degree allows you to make a stronger impression on an admission committee and be a high achiever in Medical School. As a rule, graduates with a Chemistry degree are capable of understanding biology-related issues better than biology majors can understand problems associated with chemistry.

What do I need to complete a Chemistry minor?

A minimum of 20 semester hours are required for a chemistry minor, unless all twenty are required for the student's current major. The 20 semester hours shall include one year of general/inorganic chemistry with laboratory, a semester of analytical chemistry with laboratory, and one year of organic chemistry with laboratory. CHEM 340 Survey of Organic Chemistry and BIMB 301 Biochemistry can be substituted for one year of organic chemistry. If all twenty hours are required by the student's major, a minor may be achieved by taking 2 semester hours at or above the 300 level beyond the chemistry courses required for the major.

How many students graduate annually in Chemistry?

Generally, about 15 to 20 students graduate with chemistry majors each year ensuring close interaction with faculty. The number includes transfer students and those who switch to chemistry from other majors after the first year. The majority of chemistry majors complete the degree requirements in four years.



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The UND Chemistry Department offers a B.S. in Chemistry Degree certified by the American Chemical Society (ACS) as well as a B.S. degree with Major in Chemistry. The latter degree has two tracks: Physical Science Emphasis and Biochemistry Emphasis. Each degree requires 120 credits (36 of which must be numbered 300 or above and 30 must be form UND) including Essential Studies (ES) Requirements. ES requirements can be found at <http://und.edu/academics/essential-studies/requirements.cfm>. Specific requirements for each

B.S. in Chemistry

American Chemical Society Degree

Major Requirement 53 hours of Chemistry including:

FRESHMAN YEAR	Fall	Spring
Orientation to Chemistry I (Chem 101)	1	
Fundamentals of Chemistry: Concepts and Lab (Chem 221, 221L) (can be replace by sequence 121I&122L)	4	
Inorganic Chemistry I & Lab (Chem 254, 254L)		4
College Composition I (Engl 110)	3	
Composition II: Writing for Public Audiences (Engl 130)		3
Calculus I (Math 165) ¹	4	
Calculus II (Math 166)		4
Essential Studies Electives ²	3	3
SOPHOMORE YEAR		
Analytical Chemistry & Lab (Chem 333, 333L)	4	
Organic Chemistry I & Lab (Chem 341, 341L)	4	
Organic Chemistry II & Lab (Chem 342, 342L)		4
Problem Solving in Organic Chemistry I (Chem 361)	1	
Problem Solving in Organic Chemistry I (Chem 362)		1
University Physics I & Lab (Phys 251, 251L)	4	
University Physics II & Lab (Phys 252, 252L)		4
Calculus III (Math 265)	4	
Essential Studies & Other Electives ²		6
JUNIOR YEAR		
Fundamental of Physical & Biophysical Chemistry (Chem 466)	3	
Fund. of Phys. & Biophys. Chem. Recitation (Chem 466R)	1	
Physical Chem Laboratory (Chem 462)		3
Biochemistry (BMB 301)		3
Quantum Mechanics and Spectroscopy (Chem 471)		3
Quantum Mechanics and Spectroscopy Recitation (Chem 471R)		1
Inorganic Chemistry II & Lab (Chem 454, 454L)	4	
Instrumental Analysis III & I (Chem 443, 441) ³	2	2
Two semesters of any foreign language	4	4
Electives ^{2,4}	2	2
SENIOR YEAR		
Instrumental Analysis II (Chem 442) ³		2
Senior Research (Chem 492)		3
Chemistry Capstone (Chem 495)		3
Electives ^{2,4}	9	10

¹ If a student is not ready for Math 165 Calculus I, Math 107 Precalculus should be taken in the first semester. ² Suggested electives are courses in Physics, Mathematics, Biochemistry, Biology, Languages, Computer Science, Chemical Engineering, Business Management, and Speech.

³ Chem 44x (441, 442 and 443) courses are offered within a regular, two-year cycle. Students can take Chem 44x courses in any order and that order may differ from one shown above. To complete the degree in 4 years, students must start their Junior Year by taking the first available Chem 44x course of the cycle. ⁴ Graduate level courses in chemistry may be taken as electives.

B.S. with Major in Chemistry

Physical Science Emphasis

Major requirement 43 hours of Chemistry including:

FRESHMAN YEAR	Fall	Spring
Orientation to Chemistry I (Chem 101)	1	
General Chemistry I & Lab (Chem 121, 121L)	4	
General Chemistry II & Lab (Chem 122, 122L)		4
College Composition (Engl 110)	3	
Composition II: Writing for Public Audiences (Engl 130)		3
Calculus I (Math 165) ¹	4	
Calculus II (Math 166)		4
Essential Studies & Other Electives ²	3	3
SOPHOMORE YEAR		
Analytical Chemistry Lab (Chem 333, 333L)	4	
Organic Chemistry I & Lab (Chem 341, 341L)	4	
Organic Chemistry II & Lab (Chem 342, 342L)		4
Problem Solving in Organic Chemistry I (Chem 361)	1	
Problem Solving in Organic Chemistry I (Chem 362)		1
University Physics I & Lab (Phys 251, 251L)	4	
University Physics II & Lab (Phys 252, 252L)		4
Calculus III (Math 265)	4	
Essential Studies & Other Electives ²		5
JUNIOR YEAR		
Fundamental of Physical & Biophysical Chemistry (Chem 466)	3	
Fund. Physical & Biophysical Chem. Recitation (Chem 466R)	1	
Physical Chem Laboratory (Chem 462)		3
Quantum Mechanics and Spectroscopy (Chem 471)		3
Quantum Mechanics and Spectroscopy Recitation (Chem 471R)		1
Instrumental Analysis III & I (Chem 443, 441) ³	2	2
Two semesters of any foreign language	4	4
Essential Studies & Other Electives ^{2,4}	5	2
SENIOR YEAR		
Instrumental Analysis II (Chem 442) ³		2
Essential Studies and Other Electives ²	14	10
Chemistry Capstone (Chem 495) ⁴		3

¹ If a student is not ready for MATH 165 Calculus I, MATH 107 Precalculus should be taken in the first semester. ² Suggested electives are courses in Physics, Mathematics, Biochemistry, Biology, Languages, Computer Science, Chemical Eng., Business Manag., and Speech. Other undergraduate and graduate level courses in Chemistry may be taken as electives, Inorganic Chemistry I (Chem 254/L) is especially recommended for a broader chemistry knowledge. ³ Chem 44X Instrumental Analysis (CHEM 441 IA I - Spectroscopy, CHEM 442 IA II—Electrochemistry, CHEM 443 IA III - Chromatography/ Mass Spectrometry) courses are offered within a regular, two-year cycle. ⁴ If Chemistry Capstone (CHEM 495) is not taken for ES fulfillment, then one credit hour must be taken of CHEM 392 or CHEM 492.

TEACHER CERTIFICATION

Student must fulfill: <i>One of the majors in Chemistry & 33 credits from the Dept. of Teaching and Learning</i>	
Biochemistry (BIMB 301)	3
General Biology I & Lab (Biol 150, 150L, 152, 151L)	4
Four credits from:	
Physical Geology (Geol 101, 101L)	4
Physical Geography (Geog 121, 121L)	4

B.S. with Major in Chemistry

Biochemistry Emphasis

Major requirement 40 hours of Chemistry including:

FRESHMAN YEAR	Fall	Spring
Orientation to Chemistry I (Chem 101)	1	
General Chemistry I & Lab (Chem 121, 121L)	4	
General Chemistry II & Lab (Chem 122, 122L)		4
College Composition (Engl 110)	3	
Composition II: Writing for Public Audiences (Engl 130)		3
Applied Calculus I (Math 146) ¹		3
General Biology I & Lab (Biol 150, 150L) ²	4	
General Biology II & Lab (Biol 151, 151L)		4
Essential Studies & Other Electives ³	3	1
SOPHOMORE YEAR		
Analytical Chemistry Lab (Chem 333, 333L)	4	
Organic Chemistry I & Lab (Chem 341, 341L)	4	
Organic Chemistry II & Lab (Chem 342, 342L)		4
Problem Solving in Organic Chemistry I (Chem 361)	1	
Problem Solving in Organic Chemistry I (Chem 362)		1
College Physics I & Lab (Phys 211, 211L)	4	
College Physics II & Lab (Phys 212, 212L)		4
Essential Studies & Other Electives ³	3	6
JUNIOR YEAR		
Fundamental of Physical & Biophysical Chemistry (Chem 466)	3	
Fund. Physical & Biophysical Chem. Recitation (Chem 466R)	1	
Survey of Physical Chem Laboratory (Chem 467)		2
Biochemistry (BIMB 301)		3
Two semesters of any foreign language ⁴	4	4
Essential Studies & Other Electives	6	6
SENIOR YEAR		
Biochemistry of Proteins & Information Flow (BIMB 401)	3	
Directed Studies Biomedical Research (BIMB 494)	2	
Essential Studies & Other Electives ³	10	11
Chemistry Capstone (Chem 495)		34

¹ If a student is not ready for MATH 146 Applied Calculus I, MATH 103 College Algebra should be taken in the first semester. ² BIOL 150 General Biology I and BIOL 151 General Biology II can be taken in the sophomore year. They are prerequisites to other required biology courses. ³ Electives must include 3 credit hours from BIOL 341 Cell Biology, BIOL 315 Genetics, or MBIO 302 General Microbiology Lecture/BIMB 302L General Microbiology Laboratory. Other suggested electives are courses in Physics, Mathematics, Biochemistry, Biology, Languages, Computer Science, Chemical Engineering, Business Management, and Speech. Other undergraduate and graduate level courses in Chemistry may also be taken as electives. ⁴ Two semesters of a foreign language are required. If a student wishes to pursue Study Abroad, taking language courses earlier is recommended.

Medical Laboratory Science (MLS) "4+1" curriculum

A certificate from MLS with 1 year of additional study past B.S. Students are then eligible to take National Certificate Examination and may become Medical Laboratory Scientists, min GPA 2.8 for the B.S. Program and grade C or higher in specified courses.