

# Chemistry Major, B.S.

Department of Chemistry

Chemistry is a body of knowledge that helps explain the physical world and its processes. Chemists study substances: their composition, structures, properties, and reactions. The Department of Chemistry provides classroom and laboratory learning opportunities and research experience across the discipline to meet the needs of students in preprofessional programs as well as of students who wish to pursue careers in the field.

## Typical Program of Study:

### Fall Semester

#### First Year

Chem 1151 General Chemistry I <sup>a</sup> or Chem 1161 Honors Chemistry I <sup>a</sup>	5 cr
Math 1296 Calculus I <sup>b</sup>	5 cr
Comp 1120 College Writing	3 cr
Liberal education course	<u>3 cr</u>
	16 cr

#### Second Year

Chem 2521 Organic Chemistry I	4 cr
Phys 2011 General Physics I	4 cr
Math 3280 Diff Equations/Linear Algebra <sup>c</sup>	4 cr
Liberal education or minor field course	<u>3 cr</u>
	15 cr

#### Third Year

Chem 4641 Physical Chemistry I	3 cr
Chem 4643 Physical Chemistry Lab I	1 cr
Comp 31xx Advanced Writing	3 cr
Liberal education or minor field courses	<u>7 cr</u>
	14 cr

#### Fourth Year

Chem 3184 Undergraduate Seminar	1 cr
Chem 4434 Inorganic Chemistry	4 cr
Chem 4435 Inorganic Chemistry Lab	1 cr
Liberal education or minor field courses	<u>8 cr</u>
	14 cr

### Spring Semester

Chem 1152 General Chemistry II or Chem 1162 Honors Chemistry II	5 cr
Math 1297 Calculus II	5 cr
Liberal education courses	<u>6 cr</u>
	16 cr

Chem 2522 Organic Chemistry II	5 cr
Phys 2012 General Physics II	4 cr
Chem 2222 Quantitative Analysis	3 cr
Chem 2223 Quantitative Analysis Lab	1 cr
Liberal education or minor field course	<u>3 cr</u>
	16 cr

Chem 3322 Biochemistry	3 cr
Chem 3324 Biochemistry Lab	1 cr
Chem 4642 Physical Chemistry II	3 cr
Chem 4644 Physical Chemistry Lab II	1 cr
Liberal education or minor field courses	<u>6 cr</u>
	14 cr

Chem 3184 Undergraduate Seminar	1 cr
Chem 4242 Instrumental Analysis	3 cr
Chem 4243 Instrumental Chemistry Lab	2 cr
Liberal education or minor field courses	<u>9 cr</u>
	15 cr

<sup>a</sup>High school algebra and high school chemistry are required for Chem 1151 and Chem 1161.

<sup>b</sup>First math course is determined by math placement exam. This schedule presupposes placement into Math 1296.

<sup>c</sup>Math 3280, a prerequisite for Chem 4641, can be taken any time after Math 1297 and should be completed by fall semester of the third year.

## For further information:

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<http://www.d.umn.edu/chem>

## Chemistry Major, B.S.

2003-2005 Catalog

Major Course Requirements	Credits	Prerequisites	Semester To Be Completed	Grade When Completed
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<b>Year 1</b>				
Chem 1151 General Chemistry I	5	1 year high school chem and algebra Chem 1151		
Chem 1152 General Chemistry II	5			
<b>OR</b>				
Chem 1161 Honors General Chemistry I	5	High school chemistry; placement Chem 1161		
Chem 1162 Honors General Chemistry II	5			
Math 1296 Calculus I	5	Math placement test		
Math 1297 Calculus II	5	Math 1296		
Comp 1120 College Writing	3			

<b>Year 2</b>				
Chem 2222 Quantitative Analysis	3	Chem 1152 or 1162		
Chem 2223 Quantitative Analysis Lab	1	Concurrent registration in Chem 2222		
Chem 2521 Organic Chemistry I	4	Chem 1152 or 1162		
Chem 2522 Organic Chemistry II	5	Chem 2521		
Math 3280 Diff Equations w/ Lin Algebra	4	Math 1297		
Phys 2011 General Physics I	4	Math 1290 or Math 1296		
Phys 2012 General Physics II	5	Phys 2011; Math 1297		

<b>Year 3</b>				
Chem 3322 Biochemistry	3	Chem 2522		
Chem 3324 Biochemistry Laboratory	1	Chem 3322 (concurrent registration ok)		
Chem 4641 Physical Chemistry I	3	2 yrs chemistry; Math 3280; Phys 2012		
Chem 4643 Physical Chemistry Lab I	1	Concurrent registration in Chem 4641		
Chem 4642 Physical Chemistry II	3	Chem 4641		
Chem 4644 Physical Chemistry Lab II	1	Concurrent registration in Chem 4642		
Comp 31xx Advanced Writing	3	Comp 1120; 60 credits		

<b>Year 4</b>				
Chem 3184 Undergrad Seminar (2 sem)	2	Chem major		
Chem 4242 Instrumental Analysis	3	Chem 2222; 4632 or 4642 (concurrent OK)		
Chem 4243 Instrumental Chemistry Lab	2	Concurrent registration in Chem 4242		
Chem 4434 Inorganic Chemistry	4	Chem 4632 or 4642		
Chem 4435 Inorganic Chemistry Lab	1	Concurrent registration in Chem 4434		

NOTE: In addition to the above, students must complete the liberal education program and a minor to earn the B.S. degree.