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## Planning Sheet: BACHELOR OF SCIENCE in CHEMISTRY

(Effective Fall 2008. This major consists of 18 courses)

**Foundation courses:** Complete one of the following introductory series of Chemistry courses (CHM 105 & 106 or CHM 115 & 116)

<u>Term</u>	<u>Grade</u>	<u>Course #</u>	<u>AugCore</u>	<u>Title</u>
_____	_____	CHM 115	NSM-L	General Chemistry 1 (Prereq: MPG 4 and high school chemistry)
_____	_____	CHM 116	NSM-L	General Chemistry 2 (Prereq: CHM 115)
<b>OR</b>				
_____	_____	CHM 105	NSM-L	Principles of Chemistry 1 (Prereq: MPG 2 & concurrent reg. in MAT 105)
_____	_____	CHM 106	NSM-L	Principles of Chemistry 2 (Prereq: MPG 3 & CHM 105)

### Upper Division Major Requirements:

_____	_____	CHM 351		Organic Chemistry I (Prereq: CHM 106 or CHM 116)
_____	_____	CHM 352		Organic Chemistry II (Prereq: CHM 351)
_____	_____	CHM 353		Quantitative Analytical Chemistry (Prereq: MPG 3 & CHM 106 or 116)
_____	_____	CHM 361		Physical Chemistry 1 (Prereq: Passed CT assessment or GST 100, CHM 106 or 116, PHY 121 & 122, and MAT 145 & 146)
_____	_____	CHM 363		Physical Chemistry Lab 1 (.5) (Prereq: ENL 111 or 112 or HON 111 & CHM 361 or concurrent registration)
_____	_____	CHM 364		Physical Chemistry 2 (Prereq: CHM 361)
_____	_____	CHM 365		Physical Chem. Lab 2 (.5) (Prereq: CHM 364 or concurrent registration)
_____	_____	CHM 464		Advanced Organic Chemistry (Prereq: CHM 352, 353, & 361 or consent)
_____	_____	CHM 481		Advanced Analytical Chemistry (Prereq: CHM 353 & 361 or consent)
_____	_____	CHM 482		Advanced Inorganic Chemistry (Prereq: CHM 352 & 361 or consent)
_____	_____	CHM 491		Chemistry Seminar ( <b>Non-credit</b> . 4 semesters)

**Biochemistry Requirement:** Complete 1 Biochemistry course, BIO 369 or other approved ACTC/transfer course. Consult with your faculty advisor.

_____	_____	BIO 369	<input type="checkbox"/>	Biochemistry (prereq: BIO 253 & CHM 352)
			<input type="checkbox"/>	Other Approved Biochemistry course: _____

**Chemistry Electives:** Select and complete 1 of the following courses.

_____	_____	CHM 367	<input type="checkbox"/>	Properties of Polymers (Prereq: CHM 352 & 361)
		CHM 470	<input type="checkbox"/>	Principles of Medicinal Chemistry (Prereq: CHM 352 or consent & BIO 369 recommended)
		CHM 495	<input type="checkbox"/>	Topics in Advanced Chemistry

### Non-departmental Supporting Requirements:

_____	_____	PHY 121	NSM-L	General Physics 1 (Prereq: MAT 145 or concurrent registration)
_____	_____	PHY 122	NSM-L	General Physics 2 (Prereq: PHY 121, & MAT 146 or concurrent registration, and ENL 111 or 112 or HON 111)
_____	_____	MAT 145	NSM	Calculus 1 (Prereq: MPG 4)
_____	_____	MAT 146	NSM	Calculus 2 (Prereq: MAT 145)
_____	_____	MAT 245		Calculus 3 (Prereq: MAT 146)

### Notes:

- **Keystone:** SCI 490: Integrated Science (.5 credit) is recommended to meet the Keystone requirement.
- **B.S. Waiver:** Student completing the B.S. in Chemistry may waive two Liberal Arts Foundation courses (in two different areas), or waive the two-course Modern Language requirement.
- **Abbreviation Key:** ML = Modern Language; SC = Signature Curriculum; EM = Engaging Minneapolis; AE = Augsburg Experience; KC = Senior Keystone Course; NSM = Natural Science & Mathematics - no lab; NSM-L = Natural Science & Mathematics-with lab; SBS = Social & Behavioral Science; FA = Fine Arts; HUM = Humanities

**See back for information on graduation skills requirements**

## Planning Sheet: GRADUATION SKILLS REQUIREMENTS

These requirements were implemented for Fall 2008. Please talk with your faculty advisor for information.

**Graduation skills, including the Quantitative Reasoning requirements, are completed as follows.** Graduation skills in Critical Thinking, Writing, Speaking, and Quantitative Reasoning are required for graduation. Critical Thinking is embedded in all majors. Plans for completion of other graduation skills are determined by the major department. Consult your department chair or faculty advisor to select appropriate courses to meet the Quantitative Reasoning (QR) graduation skill. QR is satisfied by completing one (1) Quantitative Foundational course (QF) and one (1) Quantitative Application course (QA), or one (1) combined QFA course. The most current information on Graduation Skills can be found online at [www.augsburg.edu/catalog/](http://www.augsburg.edu/catalog/) and clicking on "Graduation Skills Catalog Supplement 2008 – 2010" near the bottom of the page.

**Transfer students must consult an advisor about potential adjustments to their course requirements to fulfill each graduation skill.**

Designated Major Course	GRADUATION SKILLS – Chemistry B.S.		Completed
Embedded in major	<b>Writing Requirements</b> TWO (2) Writing courses		
Embedded in major			
COM 111 or 115	<b>Speaking</b> One (1) Speaking course		
Designated Major Course	QUANTITATIVE REASONING		Completed
Embedded in major	<b>Quantitative Foundations &amp; Applications</b> One (1) QFA course (Prereq: MPG3)	QFA course	
<b>– OR –</b>			
Embedded in major	<b>Quantitative Foundations and Quantitative Applications</b> One (1) QF course (Prereq: MPG 3) <b>and</b> one (1) QA course		QF course
Embedded in major			QA course

## Graduation Tally Checklist

These requirements were implemented in April 2003 and remain in effect until further notice.

Requirement	Progress Towards Completion	
<b>Cumulative Course Credits</b> <ul style="list-style-type: none"> <li>▪ Minimum number of course credits needed for graduation = 32</li> <li>▪ At least 8 credits completed at Augsburg.</li> <li>▪ 6 of last 8 credits completed in residence.</li> <li>▪ Second degree – minimum of 8 credits completed in residence.</li> </ul>	Transfer Credits Earned	
	+ Aug. Credits Earned	
	= Total Credits Earned	
	# Credits Needed	

<b>Grade Point Average (GPA)</b> <ul style="list-style-type: none"> <li>▪ Minimum 2.0 GPA required in major, minor, &amp; overall.</li> <li>▪ Some majors require higher GPA.</li> <li>▪ Latin Honors GPA requirements:                             <ul style="list-style-type: none"> <li>○ Summa cum laude: 3.9-4.0</li> <li>○ Magna cum laude: 3.80-3.89</li> <li>○ Cum laude: 3.60-3.79</li> </ul> </li> </ul>	Cumulative GPA	
	Major 1 GPA	
	Major 2 GPA	
	Minor GPA	

Other Limits	Minimum/Maximum	Your Total
<b>Overall maximum courses graded Pass/No Pass (P/N)</b> <ul style="list-style-type: none"> <li>▪ Grade of 2.0 or above required to Pass and earn credit for course.</li> <li>▪ Maximum of 2 of 6 credits P/N may be in major.</li> </ul>	Maximum of 6	
<b>Major Courses graded Pass/No Pass (P/N)</b>	Maximum of 2	
<b>Latin Honors courses graded Pass/No Pass (P/N)</b>	Maximum of 2	
<b>Latin Honors traditionally graded courses</b>	Minimum of 14	
<b>Internships</b>	Maximum of 4	
<b>Independent/Directed Studies</b>	Maximum of 2	

## Sample Four-Year Plan (B.S.)

This is a possible plan for the Bachelor of Science in Chemistry, though there are many configurations of courses. Students should complete CHM 115 – 116 and MAT 145 – 146 during the first year. Liberal Arts Foundation (LAF), Modern Language and other Core courses are more flexible. **NOTE: Students completing the B.S. curriculum may waive two Liberal Arts Foundation courses (in two different areas), or waive the two-course Modern Language requirement.**

### Freshman Year

#### Fall Term (4)

CHM 105 or 115  
MAT 145  
LAF Course  
ENL 111  
AugSem

#### Spring (4)

CHM 106 or 116  
MAT 146  
LAF Course  
REL 100  
HPE 001

### Sophomore Year

#### Fall Term (4)

CHM 351  
PHY 121  
MAT 245  
Modern Language

#### Spring (4)

CHM 352  
PHY 122  
REL 200  
Modern Language

### Junior Year

#### Fall Term (4.5)

CHM 361  
CHM 363 (.5 credit)  
CHM 353  
CHM 491 (non-credit)  
LAF Course  
Minor or Elective

#### Spring (4.5)

CHM 364  
CHM 365 (.5 credit)  
CHM 481  
CHM 491 (non-credit)  
LAF Course  
Minor or Elective

### Senior Year

#### Fall Term (4)

CHM 482  
CHM 464  
CHM 491 (non-credit)  
Minor or Elective  
Minor or Elective

#### Spring (3.5)

CHM 367 or CHM 470  
CHM 491 (non-credit)  
Keystone: SCI 490 (.5 credit)  
Minor or Elective  
Minor or Elective  
HPE Skill

#### Notes:

- CHM 464 and CHM 482 are offered in the fall; CHM 364 and CHM 481 are in spring. CHM 367 and CHM 470 are offered alternating springs.
- Students planning to apply to medical school will want to take certain biology requirements, including BIO 151, 152, 253, and 369. Also recommended for the MCAT are BIO 355, 473, and 476.

## Chemistry Department

The Chemistry Department is located in Science Hall 137. You may contact the following faculty for more information on the major requirements, and also check out the website at: [www.augsburg.edu/chemistry](http://www.augsburg.edu/chemistry).

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## What can I do with a Chemistry major?

The following jobs are some of the positions that chemistry majors could pursue. Many require professional or graduate school.

For more information on possible careers in chemistry, please talk with your faculty advisor, and also the Center for Service, Work and Learning.

Biochemist  
Chemist  
Chemical Engineer  
Consultant  
Dietician  
Environmental Health Specialist  
Environmental Lawyer  
Food Scientist  
Forensic Technician  
Forensic Scientist  
Geneticist  
Laboratory Technician  
Patent Attorney  
Pharmaceutical Development  
Pharmaceutical Sales  
Pharmacist  
Pharmacologist  
Physician  
Plant Manager  
Professor  
Public Health  
Quality Control Scientist  
Research Scientist  
Teacher  
Technical Writer  
Toxicologist  
Veterinarian

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