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## Planning Sheet: BACHELOR OF SCIENCE in BIOLOGY

(Effective Fall 2008. This major consists of 17 courses, including 6 upper-division Biology courses)

### Biology Major Requirements

Term	Grade	Course #	Lib. Arts	Title
_____	_____	BIO 151	NSM-L & EM	Introductory Biology (Prereq: MPG 3 or concurrent registration in MAT 105, and concurrent registration in CHM 105 or 115)
_____	_____	BIO 152	NSM-L	Evolution, Ecology, and Diversity (Prereq: MPG 3 & BIO 151)
_____	_____	BIO 253		Introductory Cellular Biology (Prereq: BIO 151 and 152 and CHM 106 or 116)

Select and complete one (1) of the following two (2) courses:

_____	_____	BIO 361	<input type="checkbox"/>	Plant Biology (Prereq: ENL 111 or 112 or HON 111; BIO 151 & BIO 152)
_____	_____	BIO 481	<input type="checkbox"/>	Ecology (Prereq: BIO 253 and MPG 4 or MAT 114 or 122 or 163 or PSY 215)

**Biology Electives:** Select and complete five (5) upper division Biology electives.

_____	_____	BIO _____	_____	Biology Elective: _____
_____	_____	BIO _____	_____	Biology Elective: _____
_____	_____	BIO _____	_____	Biology Elective: _____
_____	_____	BIO _____	_____	Biology Elective: _____
_____	_____	BIO _____	_____	Biology Elective: _____

### Non-Departmental Supporting Requirements:

**Chemistry:** Select & complete 1 of the following introductory series of Chemistry courses (CHM 105 & 106 or CHM 115 & 116). In addition, complete CHM 351 & 352 (or other approved self-contained 1 semester Organic Chemistry course from another institution).

_____	_____	CHM 115	NSM-L	General Chemistry I (Prereq: HS Chemistry & MPG 4)
_____	_____	CHM 116	NSM-L	General Chemistry II (Prereq: CHM 115)

**OR**

_____	_____	CHM 105	NSM-L	Principles of Chemistry I (Prereq: MPG 2 and concurrent reg. in MAT 105, or MPG 3)
_____	_____	CHM 106	NSM-L	Principles of Chemistry II (Prereq: CHM 105 and MPG 3)

### Organic Chemistry

_____	_____	CHM 351		Organic Chemistry I (Prereq: CHM 106 or 116)
_____	_____	CHM 352		Organic Chemistry II (Prereq: CHM 106 or 116)

### Physics:

_____	_____	PHY 121	NSM-L	General Physics I (Prereq: MAT 145 or concurrent registration)
_____	_____	PHY 122	NSM-L	General Physics II (Prereq: PHY 121, & MAT 146 or concurrent registration, and ENL 111 or 112 or HON 111)

### Mathematics:

_____	_____	MAT 145	NSM	Calculus I (Prereq: MPG 4)
_____	_____	MAT 146	NSM	Calculus II (Prereq: MAT 145)

### Notes:

- **Keystone:** BIO 490: Biology Keystone (.5 credit) is recommended to meet the Keystone requirement.
- **B.S. Waiver:** Student completing the B.S. in Biology 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 – Biology 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	
– OR –			
Embedded in major	<b>Quantitative Foundations and Quantitative Applications</b> One (1) QF course (Prereq: MPG 3) <u>and</u> 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 = <b>32</b></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 Biology, though there are many configurations of courses. Students should limit lab courses to two per term. In general, students should try to complete math earlier in the curriculum, and physics during the junior or senior years. 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)

BIO 151  
CHM 105 or 115  
MAT 145  
REL 100  
AugSem

#### Spring (4)

BIO 152  
CHM 106 or CHM 116  
MAT 146  
ENL 111

### Sophomore Year

#### Fall Term (4)

BIO 253  
CHM 351  
Modern Language  
COM 115

#### Spring (4)

Upper-Division BIO elective  
CHM 352  
Modern Language  
REL 200

### Junior Year

#### Fall Term (4)

PHY 121  
Upper-Division BIO elective  
LAF Course  
Minor or Elective  
HPE 001

#### Spring (4)

PHY 122  
Upper-Division BIO elective  
LAF Course  
Minor or Elective

### Senior Year

#### Fall Term (4)

Upper-Division BIO elective  
Upper-Division BIO elective  
LAF Course  
Minor or Elective  
HPE skill

#### Spring (4.5)

Upper-Division BIO elective  
Keystone: SCI 490 (.5 credit)  
Minor or Elective  
Minor or Elective  
Minor or Elective

## Biology Department

The Biology Department is located in Science Hall 224. You may contact the following faculty for more information on the major requirements, and also check out the website at [www.augsburg.edu/biology](http://www.augsburg.edu/biology).

Dale C. Pederson, Dept Chair  
Associate Professor  
Phone: 612-330-1073  
Email: [pederson@augsborg.edu](mailto:pederson@augsborg.edu)

Jennifer Bankers-Fulbright  
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Ralph J. Butkowski  
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Phone: 612-330-1075  
Email: [butkowski@augsborg.edu](mailto:butkowski@augsborg.edu)

William C. Capman  
Associate Professor  
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Email: [capman@augsborg.edu](mailto:capman@augsborg.edu)

David Crowe  
Assistant Professor  
Phone: 612-330-1794  
Email: [crowe@augsborg.edu](mailto:crowe@augsborg.edu)

## What can I do with a Biology major?

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

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

Agronomist  
Botanist  
Cell Biologist  
Chiropractor  
Conservationist  
Dentist  
Environmental Scientist  
Environmental Lawyer  
Field Biologist  
Field Ecologist  
Fish and Wildlife Officer  
Forestry  
Geneticist  
Health Inspector  
Horticulturalist  
Naturalist  
Nutritionist  
Optometrist  
Pharmacologist  
Physical Therapist  
Physician  
Public Health  
Researcher  
Resource Management  
Taxonomist  
Veterinarian

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