

# BACHELOR OF SCIENCE in BIOLOGY

Revised 5/05 MLT

*Concepts in Biology I* (50-114) and *Concepts in Biology II* (50-115) should be taken during the freshman year; *Microbiology* (50-242) and *Cell Biology* (50-271) should be taken during the sophomore year. *Intro Physics I and II* can not be taken concurrently with *Cell Biology* or *Genetics*. A minimum of thirty-nine (39) credit hours in biology is required. In addition to the 27 credit hours of required, specified courses specified on this page, the student selects 12 credit hours of elective courses in biology.

Chemistry and mathematics courses should be scheduled as early as possible in the program of study. Required courses in chemistry, physics, and mathematics fulfill the Natural Science and Mathematics general education requirement. *Basic Statistics* (48-160) may be substituted for *Introduction to Statistics* (53-141).

<p><b>Biology Core Requirement</b> (27 cr hrs) <input type="checkbox"/></p> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">50-114</td><td style="width: 65%;">Concepts in Biology I</td><td style="width: 10%; text-align: center;">4</td><td style="width: 10%;"><input type="checkbox"/></td></tr> <tr><td>50-115</td><td>Concepts in Biology II</td><td style="text-align: center;">4</td><td><input type="checkbox"/></td></tr> <tr><td>50-242</td><td>Microbiology</td><td style="text-align: center;">4</td><td><input type="checkbox"/></td></tr> <tr><td>50-271</td><td>Cell Biology</td><td style="text-align: center;">4</td><td><input type="checkbox"/></td></tr> <tr><td>50-332</td><td>Genetics</td><td style="text-align: center;">3</td><td><input type="checkbox"/></td></tr> <tr><td>50-351</td><td>Ecology</td><td style="text-align: center;">3</td><td><input type="checkbox"/></td></tr> <tr><td>50-481</td><td>Senior Biology Seminar</td><td style="text-align: center;">1</td><td><input type="checkbox"/></td></tr> </table> <p><b>Physiology Requirement</b> (Select 50-479 AND one lecture course from among 50-472, 50-474, 50-477, 50-478, and 50-480.)</p> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">50-479</td><td style="width: 65%;">Integrated Physiology Lab*</td><td style="width: 10%; text-align: center;">1</td><td style="width: 10%;"><input type="checkbox"/></td></tr> </table> <p>AND *Scheduled concurrently with physiology lecture course.</p> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">50-472</td><td style="width: 65%;">Animal Cell Physiology</td><td style="width: 10%; text-align: center;">3</td><td style="width: 10%;"><input type="checkbox"/></td></tr> <tr><td>50-474</td><td>Vertebrate Systems Physiol</td><td style="text-align: center;">3</td><td><input type="checkbox"/></td></tr> <tr><td>50-477</td><td>Plant Physiology</td><td style="text-align: center;">3</td><td><input type="checkbox"/></td></tr> <tr><td>50-478</td><td>Microbial Physiology</td><td style="text-align: center;">3</td><td><input type="checkbox"/></td></tr> <tr><td>50-480</td><td>Comparative Vert Physiol</td><td style="text-align: center;">3</td><td><input type="checkbox"/></td></tr> </table> <p><b>Biology Elective Requirement</b> (12 cr hrs)                  Select 12 cr hrs of biology and/or marine science electives listed on p. 2, and list them below.</p> <p>Other biology electives selected are counted as free electives.</p> <p>50 - _____</p> <p>50 - _____</p> <p>50 - _____</p> <p>50 - _____</p>	50-114	Concepts in Biology I	4	<input type="checkbox"/>	50-115	Concepts in Biology II	4	<input type="checkbox"/>	50-242	Microbiology	4	<input type="checkbox"/>	50-271	Cell Biology	4	<input type="checkbox"/>	50-332	Genetics	3	<input type="checkbox"/>	50-351	Ecology	3	<input type="checkbox"/>	50-481	Senior Biology Seminar	1	<input type="checkbox"/>	50-479	Integrated Physiology Lab*	1	<input type="checkbox"/>	50-472	Animal Cell Physiology	3	<input type="checkbox"/>	50-474	Vertebrate Systems Physiol	3	<input type="checkbox"/>	50-477	Plant Physiology	3	<input type="checkbox"/>	50-478	Microbial Physiology	3	<input type="checkbox"/>	50-480	Comparative Vert Physiol	3	<input type="checkbox"/>	<p><b>Chemistry Requirement</b> (20 hrs) <input type="checkbox"/></p> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">52-115</td><td style="width: 65%;">Chem for the Sciences 1</td><td style="width: 10%; text-align: center;">4</td><td style="width: 10%;"><input type="checkbox"/></td></tr> <tr><td>52-116</td><td>Chem for the Sciences 2</td><td style="text-align: center;">4</td><td><input type="checkbox"/></td></tr> <tr><td>52-231</td><td>Organic Chemistry I</td><td style="text-align: center;">4</td><td><input type="checkbox"/></td></tr> <tr><td>52-232</td><td>Organic Chemistry II</td><td style="text-align: center;">4</td><td><input type="checkbox"/></td></tr> <tr><td>52-341</td><td>Biochemistry</td><td style="text-align: center;">4</td><td><input type="checkbox"/></td></tr> </table> <p><b>Physics Requirement</b> (8 cr hrs; select one pair) <input type="checkbox"/></p> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">54-111</td><td style="width: 65%;">Introductory Physics I**</td><td style="width: 10%; text-align: center;">4</td><td style="width: 10%;"><input type="checkbox"/></td></tr> <tr><td>54-112</td><td>Introductory Physics II**</td><td style="text-align: center;">4</td><td><input type="checkbox"/></td></tr> </table> <p><b>OR</b></p> <table style="width: 100%; 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## Biology Elective Courses

50-200	Dendrology	3	<input type="checkbox"/>
50-211	Invertebrate Zoology	3	<input type="checkbox"/>
50-212	Vertebrate Zoology	3	<input type="checkbox"/>
50-222	Comp Biol Plants	3	<input type="checkbox"/>
50-233	Human Genetics	3	<input type="checkbox"/>
50-252	Field Zoology	3	<input type="checkbox"/>
50-253	Freshwater Biology	3	<input type="checkbox"/>
50-263	Field Botany	3	<input type="checkbox"/>
50-331	Embryology	3	<input type="checkbox"/>
50-333	Molecular Biology	3	<input type="checkbox"/>
50-342	Medical Microbiology	3	<input type="checkbox"/>
50-343	Immunology	3	<input type="checkbox"/>
50-350	Plant Pathology	3	<input type="checkbox"/>
50-361	Comp Vert Anatomy	3	<input type="checkbox"/>
50-364	Vertebrate Histology	3	<input type="checkbox"/>
50-390	Ug Research in Bio I	3	<input type="checkbox"/>
50-391	Ug Research in Bio II	3	<input type="checkbox"/>
50-411	Radiation Biology	3	<input type="checkbox"/>
50-430	Evolution	3	<input type="checkbox"/>
50-431	Developmental Biology	3	<input type="checkbox"/>
50-432	Microb & Molec Genet	3	<input type="checkbox"/>
50-435	Bioinform & Genomic	3	<input type="checkbox"/>
50-442	Virology of Mammals	3	<input type="checkbox"/>
50-444	Plant Animal Tiss Cult	1	<input type="checkbox"/>
50-450	Mycology	3	<input type="checkbox"/>
50-451	Conservation Biology	3	<input type="checkbox"/>
50-452	Limnology	3	<input type="checkbox"/>
50-455	Environ Microbiology	3	<input type="checkbox"/>
50-457	Entomology	3	<input type="checkbox"/>
50-459	Ornithology	3	<input type="checkbox"/>
50-460	Population Biology	3	<input type="checkbox"/>
50-461	Animal Behavior	3	<input type="checkbox"/>
50-476	Neurophysiology	3	<input type="checkbox"/>
50-484	Methods in Biotech	3	<input type="checkbox"/>
50-489	Current Topics	3	<input type="checkbox"/>
50-490	Internship Biol/AHS	3-15	<input type="checkbox"/>
50-493	Honors Indep Study I	3	<input type="checkbox"/>
50-494	Honors Indep Study II	3	<input type="checkbox"/>

## Marine Science Courses

55-221	Marine Invertebrates	3	<input type="checkbox"/>
55-241	Marine Biology	3	<input type="checkbox"/>
55-250	Wetland Ecology	3	<input type="checkbox"/>
55-260	Marine Ecology	3	<input type="checkbox"/>
55-298	Physiology Marine Invert	3	<input type="checkbox"/>
55-300	Behavior Marine	3	<input type="checkbox"/>
55-320	Marine Microbiology	3	<input type="checkbox"/>
55-330	Tropical Invertebrates	3	<input type="checkbox"/>
55-342	Marine Botany	3	<input type="checkbox"/>
55-343	Marine Ichthyology	3	<input type="checkbox"/>
55-345	Marine Ornithology	3	<input type="checkbox"/>
55-394	Comp Phys Marine Organism	3	<input type="checkbox"/>
55-431	Ecology of Marine Plankton	3	<input type="checkbox"/>
55-432	Marine Evolutionary	3	<input type="checkbox"/>
55-441	Biology of Molluscs	3	<input type="checkbox"/>
55-464	Biological Oceanography	3	<input type="checkbox"/>
55-470	Research Diver Methods	3	<input type="checkbox"/>
55-490	Marine Aquaculture	3	<input type="checkbox"/>
55-491	Coral Reef Ecology	3	<input type="checkbox"/>
55-492	Marine Mammals	3	<input type="checkbox"/>
55-493	Behavioral Ecology	3	<input type="checkbox"/>

### Restrictions on Non-Classroom Courses

1. A maximum of 3 cr hr of 50-490 may be applied as biology elective credit toward the degree.

2. A maximum of 6 cr hr from among 50-390, 50-391, 50-490, 50-493 and 50-494 may be applied as biology elective credit toward the degree.

## General Education Requirements

Two cultural diversity courses (6 cr hr) are required. Designate these with a + symbol.

### Communication (9 cr hrs)

20-101	English Composition I	3	<input type="checkbox"/>
50-290	Writing in Biology	3	<input type="checkbox"/>
_____	_____	3	<input type="checkbox"/>

20-201 English Composition II can be substituted for Writing in Biology (substitution requires written justification, advisor endorsement, and BAHS chairperson approval).

Suggested communication electives include: a foreign language course or 25-103 Public Speaking.

**Quantitative-Analytical Reasoning** (3 cr hrs)  
Fulfilled by mathematics requirement for major.

**Values, Ethics, ...** (3 cr hrs)  
\_\_\_\_\_ 3

### GROUP C. Natural Science and Mathematics (12 cr hrs)

Fulfilled by biology, chemistry, physics, and mathematics requirements for the major.

### GROUP A. Humanities & Arts (12 cr hrs; 3 departments)

_____	_____	<input type="checkbox"/>
_____	_____	<input type="checkbox"/>
_____	_____	<input type="checkbox"/>
_____	_____	<input type="checkbox"/>

### GROUP B. Social Sciences (12 cr hrs; 3 departments)

_____	_____	<input type="checkbox"/>
_____	_____	<input type="checkbox"/>
_____	_____	<input type="checkbox"/>
_____	_____	<input type="checkbox"/>

### Fitness and Recreational Skills (2 cr hrs)

_____ <input type="checkbox"/>	_____ <input type="checkbox"/>
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### Free Electives. List free elective courses here. Total number of cr hrs must be at least 120.

_____ <input type="checkbox"/>	_____ <input type="checkbox"/>
_____ <input type="checkbox"/>	_____ <input type="checkbox"/>
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