

BACHELOR OF ARTS in BIOLOGY

Revised 11/05 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. A minimum of thirty-five (35) credit hours in biology is required. In addition to the 41 credit hours of required courses listed on this page, the student must select 13 credit hours of elective courses in biology and other sciences.

Chemistry and mathematics courses should be scheduled as early as possible in the program of study. Required courses in chemistry and biology partially fulfill the Natural Science and Mathematics general education requirement. *Basic Statistics* (48-160) may be substituted for *Introduction to Statistics* (53-141). Required foreign language courses count towards fulfilling the Communication and/or Humanities general education requirements (see p. 3 for details).

<p>Biology Core Requirement (26 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%;">4</td><td style="width: 10%;"><input type="checkbox"/></td></tr> <tr><td>50-115</td><td>Concepts in Biology II</td><td>4</td><td><input type="checkbox"/></td></tr> <tr><td>50-242</td><td>Microbiology</td><td>4</td><td><input type="checkbox"/></td></tr> <tr><td>50-271</td><td>Cell Biology</td><td>4</td><td><input type="checkbox"/></td></tr> <tr><td>50-332</td><td>Genetics</td><td>3</td><td><input type="checkbox"/></td></tr> <tr><td>50-351</td><td>Ecology</td><td>3</td><td><input type="checkbox"/></td></tr> </table> <p>Physiology Requirement (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%;">1</td><td style="width: 10%;"><input type="checkbox"/></td></tr> <tr><td colspan="4">AND (*to be scheduled concurrently with physio lecture)</td></tr> <tr><td>50-472</td><td>Animal Cell Physiology</td><td>3</td><td><input type="checkbox"/></td></tr> <tr><td>50-474</td><td>Vertebrate Systems Physiol</td><td>3</td><td><input type="checkbox"/></td></tr> <tr><td>50-477</td><td>Plant Physiology</td><td>3</td><td><input type="checkbox"/></td></tr> <tr><td>50-478</td><td>Microbial Physiology</td><td>3</td><td><input type="checkbox"/></td></tr> <tr><td>50-480</td><td>Comparative Vert Physiol</td><td>3</td><td><input type="checkbox"/></td></tr> </table>	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"/>	50-479	Integrated Physiology Lab*	1	<input type="checkbox"/>	AND (*to be scheduled concurrently with physio lecture)				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>Physical Sciences Requirement (12 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%;">4</td><td style="width: 10%;"><input type="checkbox"/></td></tr> <tr><td>52-116</td><td>Chem for the Sciences 2</td><td>4</td><td><input type="checkbox"/></td></tr> </table> <p>AND EITHER</p> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">52.230</td><td style="width: 65%;">Fund Organic Chemistry**</td><td style="width: 10%;">4</td><td style="width: 10%;"><input type="checkbox"/></td></tr> <tr><td colspan="4">OR</td></tr> <tr><td>54.111</td><td>Introduction to Physics I***</td><td>4</td><td><input type="checkbox"/></td></tr> </table> <p><small>**Spring semesters only</small></p> <p><small>***Fall Semesters only; conflicts with Cell Biology.</small></p>	52-115	Chem for the Sciences 1	4	<input type="checkbox"/>	52-116	Chem for the Sciences 2	4	<input type="checkbox"/>	52.230	Fund Organic Chemistry**	4	<input type="checkbox"/>	OR				54.111	Introduction to Physics I***	4	<input type="checkbox"/>
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<p>Biology and Other Science Electives (13 cr hrs; 9 cr hrs from biology and/or marine science) Select among biology, marine science, chemistry, physics, or mathematics electives listed on p. 2. List selections below.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%; height: 20px;"> </td><td style="width: 65%;"> </td><td style="width: 10%;"> </td><td style="width: 10%;"><input type="checkbox"/></td><td style="width: 15%;"> </td><td style="width: 10%;"> </td><td style="width: 10%;"><input type="checkbox"/></td></tr> <tr><td style="height: 20px;"> </td><td> </td><td> </td><td><input type="checkbox"/></td><td> </td><td> </td><td><input type="checkbox"/></td></tr> <tr><td style="height: 20px;"> </td><td> </td><td> </td><td><input type="checkbox"/></td><td> </td><td> </td><td><input type="checkbox"/></td></tr> </table>											<input type="checkbox"/>			<input type="checkbox"/>				<input type="checkbox"/>			<input type="checkbox"/>				<input type="checkbox"/>			<input type="checkbox"/>																																													
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Biology and Other Science Electives

Select 13 cr hrs of biology, marine science, chemistry, physics, or mathematics electives listed below. At least 9 cr hrs must be in biology or marine science. A third discipline, beyond biology and chemistry, must be selected, unless the physics course was selected on page 1.

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 Bacteriology	4	<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"/>
50-481	Senior Biology	1	<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 Inverteb	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"/>

Other Science Elective Courses

52-230	Fund Organic Chem***	4	<input type="checkbox"/>
52-341	Biochemistry	4	<input type="checkbox"/>
52-342	Biochemistry II	4	<input type="checkbox"/>
53-123	Essentials of Calculus	3	<input type="checkbox"/>
54-111	Intro Physics I**	4	<input type="checkbox"/>
54-112	Intro Physics II**	4	<input type="checkbox"/>

*NOTE: 52.231 Organic Chemistry 1 may not substitute unless 52.232 is taken, also.

**Course may not count as both as a biology requirement and elective. May not be taken concurrently with Cell Bio (time conflict).

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.

Foreign Language Requirement. All BA majors in Biology must fulfill a foreign language requirement. Apply these credits to the Communication Elective or to Group A . Any of the following courses may be used to satisfy the requirement: 10-101 French 1, 10-202 French 2, 10-203 French 3; 10-204 French 4; 11-101 German 1, 11-102 German 2, 11-203 German 3, 11-204 German 4; 12-101 Spanish 1, 12-102 Spanish 2, 12-203 Spanish 3, 12-204 Spanish 4; 13-102 Russian 2, 13-203 Russian 3, 13-204 Russian 4; 14-102 Italian 2; or 16-106 Chinese 2.

Communication (9 cr hrs)

20-101 English Composition I 3
 50-290 Writing in Biology 3
 _____ 3

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) 9 cr hrs fulfilled by biology and chemistry requirements for the major (from p. 1 and 2). A third science (not biology or chemistry) or math course is required. Courses meeting this requirement and counting towards the BA Science requirements are on listed on page 2. _____ 3

One course may be used to fulfill the Communication or Values, Ethics, and Responsible Decision-Making requirements and also be used to complete a Group A or a Group B requirement.

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

_____ Foreign Language

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

Fitness and Recreational Skills (2 cr hrs) _____

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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