

BACHELOR OF SCIENCE in BIOLOGY

Microbiology Option

Revised 04/05 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 forty-five (45) credit hours in biology is required. In addition to the 33 credit hours of required biology courses listed on this page, the student must select 12 credit hours of elective courses in microbiology and related sciences.

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>Microbiology Core Requirement (33 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>50-342</td><td>Medical Microbiology</td><td>3</td><td><input type="checkbox"/></td></tr> <tr><td>50-343</td><td>Immunology</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> <tr><td>50-481</td><td>Biology Senior Seminar</td><td>1</td><td><input type="checkbox"/></td></tr> </table> <p>Physiology Requirement</p> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">50-478</td><td style="width: 65%;">Microbial Physiology *</td><td style="width: 10%;">3</td><td style="width: 10%;"><input type="checkbox"/></td></tr> <tr><td colspan="4">AND *to be taken concurrently with 50-479</td></tr> <tr><td>50-479</td><td>Integrated Physiology Lab</td><td>1</td><td><input type="checkbox"/></td></tr> </table> <p><small>*Permission to take another physiology course must be made in advance (i.e. made prior to course matriculation) It requires written student justification, advisor endorsement, and BAHS chairperson approval).</small></p> <p>Microbiology & Related Science Electives Requirement</p> <p>Select 12 cr hrs of microbiology electives listed on p. 2. List microbiology electives below.</p> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%; border-bottom: 1px solid black;">_____</td><td style="width: 65%; border-bottom: 1px solid black;">_____</td><td style="width: 10%;"><input type="checkbox"/></td><td style="width: 10%;"><input type="checkbox"/></td></tr> <tr><td style="border-bottom: 1px solid black;">_____</td><td style="border-bottom: 1px solid black;">_____</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr> <tr><td style="border-bottom: 1px solid black;">_____</td><td style="border-bottom: 1px solid black;">_____</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr> <tr><td style="border-bottom: 1px solid black;">_____</td><td style="border-bottom: 1px solid black;">_____</td><td><input type="checkbox"/></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"/>	50-342	Medical Microbiology	3	<input type="checkbox"/>	50-343	Immunology	3	<input type="checkbox"/>	50-351	Ecology	3	<input type="checkbox"/>	50-481	Biology Senior Seminar	1	<input type="checkbox"/>	50-478	Microbial Physiology *	3	<input type="checkbox"/>	AND *to be taken concurrently with 50-479				50-479	Integrated Physiology Lab	1	<input type="checkbox"/>	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<p>Chemistry Requirement (16 hrs) <input type="checkbox"/></p> <table style="width: 100%; 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select one pair) <input type="checkbox"/></p> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">53-123</td><td style="width: 65%;">Essentials of Calculus</td><td style="width: 10%;">3</td><td style="width: 10%;"><input type="checkbox"/></td></tr> <tr><td>53-141</td><td>Introduction to Statistics</td><td>3</td><td><input type="checkbox"/></td></tr> </table> <p>OR</p> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">53-125</td><td style="width: 65%;">Calculus I</td><td style="width: 10%;">3</td><td style="width: 10%;"><input type="checkbox"/></td></tr> <tr><td>53-141</td><td>Introduction to Statistics</td><td>3</td><td><input type="checkbox"/></td></tr> </table> <p>OR</p> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">53-125</td><td style="width: 65%;">Calculus I</td><td style="width: 10%;">3</td><td style="width: 10%;"><input type="checkbox"/></td></tr> <tr><td>53-126</td><td>Calculus II</td><td>3</td><td><input type="checkbox"/></td></tr> </table>	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"/>	52-341	Biochemistry	4	<input type="checkbox"/>	54-111	Introductory Physics I*	4	<input type="checkbox"/>	54-112	Introductory Physics II******	4	<input type="checkbox"/>	54-211	General Physics I	4	<input type="checkbox"/>	54-212	General Physics II	4	<input type="checkbox"/>	53-123	Essentials of Calculus	3	<input type="checkbox"/>	53-141	Introduction to Statistics	3	<input type="checkbox"/>	53-125	Calculus I	3	<input type="checkbox"/>	53-141	Introduction to Statistics	3	<input type="checkbox"/>	53-125	Calculus I	3	<input type="checkbox"/>	53-126	Calculus II	3	<input type="checkbox"/>
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Microbiology & Related Science Electives (12 cr hrs)

50-333	Molecular Biology	3	<input type="checkbox"/>
50-350	Plant Pathology	3	<input type="checkbox"/>
50-390	UG Research in Biol 1	3	<input type="checkbox"/>
50-391	UG Research in Biol 2	3	<input type="checkbox"/>
50-411	Radiation Biology	3	<input type="checkbox"/>
50-432	Microbial and Molecular Genetics	3	<input type="checkbox"/>
50-435	Bioinformatics and Genomic Analysis	3	<input type="checkbox"/>
50-442	Virology	3	<input type="checkbox"/>
50-444	Plants & Animal Tissue Culture	1	<input type="checkbox"/>
50-472	Animal Cell Physiology	3	<input type="checkbox"/>
50-484	Methods in Biotechnology	3	<input type="checkbox"/>
50-450	Mycology	3	<input type="checkbox"/>
50-455	Environmental Microbiology	3	<input type="checkbox"/>
50-490	Internship in Biology	3	<input type="checkbox"/>
50-493	Honors Indep Study I	3	<input type="checkbox"/>
50-494	Honors Indep Study II	3	<input type="checkbox"/>
52-432	Biochemistry 2	4	<input type="checkbox"/>
55-320	Marine Microbiology	3	<input type="checkbox"/>
_____	_____		<input type="checkbox"/>

Restrictions on Non-Classroom Courses

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

2. A maximum of 6 cr hr from among 50-390 *Research in Biology 1*, 50-391 *Research in Biology 2*, 50-490 *Internship in Biology*, 50-493 *Honors Independent Study 1* and 50-494 *Honors Independent Study 2* 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.

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.

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 chemistry, physics, and mathematics requirements for the major.

GROUP A. Humanities & Arts

(12 cr hrs, at least 3 departments)

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

GROUP B. Social Sciences

(12 cr hrs, at least 3 departments)

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

Fitness and Recreational Skills (2 cr hrs)

Free Electives. List free elective courses here. Total number of cr hrs must be at least 120.

<p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	<p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>
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