

# Biology

Our Biology program offers students a strong foundation in basic biological principles coupled with a varied emphasis in chemistry and molecular biology. This background is designed to provide you with a comprehensive undergraduate experience that will prepare you to enter graduate school or professional areas of the health sciences, wildlife biology, and more.

## Bachelor of Science Biology (No Minor Required)

Learning outcomes: Students will describe the structure and function of cellular components. Students will describe, discuss and give examples of macro and micro evolution. Students will recognize and explain interrelationships and dependencies between abiotic and biotic components of ecosystems. Students will apply the scientific method when testing hypotheses, designing and conducting experiments. The student will design and conduct an undergraduate research project under the guidance of the course faculty. Students will prepare a library research paper, using only peer-reviewed journal articles, which compares and contrasts two or more taxa. The student will prepare and present an electronic oral presentation of their undergraduate research project. The student will demonstrate appropriate gel electrophoresis and sample loading techniques. The student will demonstrate appropriate field population sampling. The student will demonstrate appropriate aseptic technique using bacteria.

Code	Title	Credits
General Education Core ( <a href="https://catalognow.msun.edu/general-education-core/general-education-core">https://catalognow.msun.edu/general-education-core/general-education-core</a> )		33
<b>Common Science Core</b>		
BIOB 160	Principles of Living Systems	4
BIOB 161	Principles Living Systems Lab	1
BIOB 420	Evolution	4
BIOE 370	General Ecology	4
BIOE 371	General Ecology Lab	0
BIOO 220	General Botany	3
BIOO 221	Gen Botany Lab	2
BIOO 380	Zoology	3
BIOO 381	Zoology Lab	2
CHMY 141	College Chemistry I	5
CHMY 142	College Chemistry Lab I	0
CHMY 143	College Chemistry II	5
CHMY 144	College Chemistry Lab II	0
PHSX 205	College Physics I	3
PHSX 206	College Physics I Laboratory	1
PHSX 207	College Physics II	3
PHSX 208	College Physics II Laboratory	1
<b>Required Program Courses</b>		
BIOB 485	Molecular Biology and Genetics	4
BIOB 486	Molecular Biology Genetics Lab	0
CHMY 321	Organic Chemistry I	3
CHMY 322	Organic Chemistry Lab I	2
NSCI 450	Undergraduate Research I	3
COMX 111	Intro to Public Speaking (Meets CAT I Requirement)	3
STAT 216	Introduction to Statistics (Meets CAT II Requirement)	3
Select twelve (12) credits from the following:		12
BIOB 450	Molecular Biology Techniques	
BIOB 451	Molecular Biology Technqus Lab	
BIOE 410	Field Biology Methods	
BIOE 411	Field Biology Methods Lab	
BIOE 428	Freshwater Ecology	
BIOE 429	Freshwater Ecology Lab	
BIOH 201	Human Anat Phys I	
BIOH 211	Human Anat Phys II	

BIOM 250 & BIOM 251	Microbiology for Hlth Sciences and Microbiology Hlth Sciences Lab	
BIOM 251	Microbiology Hlth Sciences Lab	
BIOM 400	Medical Microbiology	
BIOM 401	Medical Microbiology Lab	
BIOO 320	General Botany	
BIOO 321	General Botany Laboratory	
BIOO 462	Entomology	
BIOO 463	Entomology Lab	
BIOO 470	Ornithology	
BIOO 471	Ornithology Lab	
GEO 314	Intro to Paleontology	
NSCI 451	Undergraduate Research II	
Advisor Approved Electives or Minor		18
<b>Total minimum credits required for degree</b>		<b>120</b>

## Minor Biology

Code	Title	Credits
<b>Required Courses (BIOB, BIOE, BIOM, BIOO, and NSCI are CAT III)</b>		
BIOB 160	Principles of Living Systems	4
BIOB 161	Principles Living Systems Lab	1
BIOE 428	Freshwater Ecology	4
BIOE 429	Freshwater Ecology Lab	0
BIOM 250	Microbiology for Hlth Sciences	3
BIOM 251	Microbiology Hlth Sciences Lab	1
BIOO 220	General Botany	3
BIOO 221	Gen Botany Lab	2
BIOO 320	General Botany	4
BIOO 321	General Botany Laboratory	0
BIOO 380	Zoology	3
BIOO 381	Zoology Lab	2
NSCI 301	Essence of Science	3
<b>Total minimum credits required for minor</b>		<b>30</b>