

# BIOLOGY MAJOR (A)

The goal of the Department of Life & Earth Sciences at Concordia University is to develop competent scientists with a Christian worldview. The graduates of its programs will possess the current scientific knowledge and research/data interpretation skills so necessary for entering scientific or medical careers in industry, academia, or government. More importantly, they will be prepared to provide a Christian influence and ethical perspective to the debate on the science-related problems facing the world today.

The Biology major provides a traditional background for students interested in careers in the biological sciences whether it be in industry, government, or academia, with the opportunity for students to identify and focus on areas of biology that are of specific interest. This major includes a broader focus (including more plants and animals) than the Biomedical Sciences Major, but still provides the foundational knowledge for most post-doctoral programs in a medical field. Accordingly, this major is commonly selected by students interested in pre-health professional education.

The Lutheran Church–Missouri Synod affirms that all of Scripture, including the creation account in Genesis, is the word of God, true, and authoritative for faith and life. Current conventional scientific theories that conflict with the account in Genesis might be studied in portions of this course. In no way should this be seen as endorsement of a non-authoritative view of Scripture by the course instructor or by Concordia University.

## Program Learning Outcomes

Students will:

- Demonstrate an understanding of and an ability to explain major biological and related scientific concepts (Knowledge Base of Biology and Related Sciences);
- Demonstrate the ability to appropriately collect and analyze data while utilizing laboratory equipment and procedures safely and effectively (Biological Procedures and Data)
- Develop investigative and critical thinking skills to explore complex questions and solve challenging scientific problems (Scientific Inquiry);
- Demonstrate the ability to communicate scientific information effectively to both scientists and non-scientists (Scientific Communication);
- Recognize how vocations in science provide opportunities for service to Christ and others and necessitate ethical behavior in all aspects of science (Vocation and Ethics)
- Demonstrate an understanding of how/why a Christian sees evidence of God's design in nature and how to be good stewards of His creation (God's Design and Stewardship).

## Curriculum

Code	Title	Hours
Core Requirements ( <a href="https://catalog.cuw.edu/undergraduate/university/acad-prog/trad/core/">https://catalog.cuw.edu/undergraduate/university/acad-prog/trad/core/</a> )		45
<b>Major Requirements</b>		<b>56</b>
<b>Electives</b>		<b>19</b>
Minor: Optional		
<b>Total Hours</b>		<b>120</b>

Code	Title	Hours
<b>Required Core Courses</b>		
CHEM 141	General Chemistry I (Natural World: Science with a Lab)	
COMM 105	Public Speaking (recommended) (Communication) or COMM 201 Interpersonal Communication	
MATH 205	Statistics I (Natural World: Mathematics)	
Select one of the following (Human Beings and Being Human):		
PHIL 350	Bioethical Dilemmas in Contemporary Society	
SCI 275	Cosmogony	
<b>Recommended Courses</b>		
PSY 101	General Psychology	
BIO 367	Ecology of the Tropics	
<b>Required Major Courses</b>		
BIO 151	Functional Human Biology I	4
BIO 152	Functional Human Biology II	4
BIO 240	Zoology	4
BIO 244	Botany	4
BIO 260	Biology of Microorganisms	4
BIO 348	Genetics	4
BIO 490	Biology Senior Seminar (1 credit course taken twice)	2
CHEM 141	General Chemistry I (taken in core)	
CHEM 142	General Chemistry II	4
CHEM 241	Organic Chemistry I	4
CHEM 242	Organic Chemistry II	4
PHYS 151	General Physics I	4
PHYS 152	General Physics II	4
<b>Major Electives</b>		
Choose a minimum of 10 credits of the following: <sup>1</sup>		10
BIO 156	Environmental Science	4
BIO 191	Human Anatomy and Physiology I	4
BIO 192	Human Anatomy and Physiology II	4
BIO 285	Pathophysiology	3
BIO 321	Cell Biology	4
BIO 351	Immunology	3
BIO 367	Ecology of the Tropics	3
BIO 368	Ecology of the Tropics-Lab	1
BIO 399	Biology Internship <sup>2</sup>	1-4
BIO 410	Ecology	4
BIO 430	Pharmacology	3
BIO 470	Human Physiology	4
BIO 499	Undergraduate Research <sup>2</sup>	1-4
CHEM 399	Chemistry Internship	1-4
CHEM 425	Biochemistry	4
CHEM 499	Undergraduate Research <sup>2</sup>	1-4
SCI 275	Cosmogony (if not taken in the core)	3
<b>Total Hours</b>		<b>56</b>

<sup>1</sup> With approval from the Life and Earth Sciences Department on an individual basis, a student may use a 4 credit upper-level chemistry course in place of one of the courses listed here.

<sup>2</sup> No more than 4 credits of BIO 399, BIO 499, CHEM 399, and/or CHEM 499 may count towards major requirements.