## **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 (https://catalog.cuw.edu/undergraduate/university/acad-prog/trad/core/)		
Major Requirements		
Electives		19
Minor: O	ptional	
Total Hours		120

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) 7 CHEM 141 General Chemistry I (taken in core) 8 CHEM 142 General Chemistry II 4 CHEM 241 Organic Chemistry II 4 CHEM 242 Organic Chemistry II 4 CHEM 242 Organic Chemistry II 4 CHEM 245 General Physics I 4 CHYS 151 General Physics I 4 CHOOSE A minimum of 10 credits of the following: 1 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 2 1-4 BIO 410 Ecology 4 BIO 430 Pharmacology 4 BIO 470 Human Physiology 4 BIO 499 Undergraduate Research 2 CHEM 499 Undergraduate Research 3 CHEM 490 Undergraduate Research 4 CHEM 490 Undergraduate Research 4 CHEM 490 Undergraduate Research 4 CHEM 490 Undergraduate	Code		Hours
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SCI 275 Cosmogony (if not taken in the core) 3	CHEM 425		4
SCI 275 Cosmogony (if not taken in the core) 3	CHEM 499	Undergraduate Research <sup>2</sup>	1-4
Total Hours 56	SCI 275		3
	Total Hours		56

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.

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