

BIOMEDICAL SCIENCES MAJOR (M)

The goal of the Departments of Physical Sciences and Life & Earth Sciences at Concordia University Wisconsin is to develop competent scientists with a Christian worldview. The graduates of this program 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 Biomedical Sciences Major, which combines human health sciences with Concordia University Wisconsin's distinctive core curriculum with courses in theology, humanities and social sciences, should provide students with the intellectual, scientific, and ethical tools to succeed in advanced studies in the health sciences (including medical, physician assistant, dentistry, optometry, pharmacy, graduate, chiropractic, or physical therapy school) or proceed directly into the growing fields of biotechnology and drug development.

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/)		45
Major Requirements		61
Electives		14
Minor: Optional		
Total Hours		120

Major Requirements

Code	Title	Hours
Required Core Courses		
CHEM 141	General Chemistry I (Lab Science)	
COMM 105	Public Speaking (Recommended)	

or COMM 20 Interpersonal Communication

MATH 205	Statistics I (Mathematics)	
PHIL 350	Bioethical Dilemmas in Contemporary Society (Human Beings and Being Human)	
Recommended Core/Elective Courses		
MATH 201	Calculus I	
PSY 101	General Psychology	
SOC 101	Introduction to Sociology (Society and Culture, for pre-medical students)	
Required Major Courses		
BIO 151	Functional Human Biology I	4
BIO 152	Functional Human Biology II	4
BIO 260	Biology of Microorganisms	4
BIO 321	Cell Biology	4
BIO 348	Genetics	4
BIO 490	Biology Senior Seminar (1 credit course taken twice)	2
CHEM 141	General Chemistry I (taken in the core)	
CHEM 142	General Chemistry II	4
CHEM 241	Organic Chemistry I	4
or CHEM 215	Survey of Organic Chemistry	
PHYS 151	General Physics I	4
or PHYS 171	University Physics I	
PHYS 152	General Physics II	4
or PHYS 172	University Physics II	
PHIL 350	Bioethical Dilemmas in Contemporary Society (taken in the core)	
MATH 205	Statistics I (taken in the core)	
Select one of the following tracks:		23-26
Pre-Medical Track (https://catalog.cuw.edu/undergraduate/cuwcampus/arts-sciences/majors/biomedical-sciences-major/./#premed)		
Human Biology Track (https://catalog.cuw.edu/undergraduate/cuwcampus/arts-sciences/majors/biomedical-sciences-major/./#human-bio)		
Research Track (https://catalog.cuw.edu/undergraduate/cuwcampus/arts-sciences/majors/biomedical-sciences-major/./#research)		

Total Hours 61-64

Pre-Medical Track

Code	Title	Hours
Required Courses		
BIO 191	Human Anatomy and Physiology I	4
BIO 192	Human Anatomy and Physiology II	4
CHEM 242	Organic Chemistry II	4
CHEM 425	Biochemistry	4
Electives		
Select at least seven credits of major electives (https://catalog.cuw.edu/undergraduate/cuwcampus/arts-sciences/majors/biomedical-sciences-major/./#electives)		7
Recommended Courses		

The following classes do not count toward the major but are strongly recommended

PSY 101	General Psychology	
SOC 101	Introduction to Sociology (Society and Culture)	
MATH 201	Calculus I	
Total Hours		23

Human Biology Track

Code	Title	Hours
BIO 191	Human Anatomy and Physiology I	4
BIO 192	Human Anatomy and Physiology II	4
PSY 101	General Psychology (recommended)	
Select five courses of the following:		15-18
BIO 285	Pathophysiology	3
BIO 351	Immunology	3
BIO 381	Histology	3
BIO 430	Pharmacology	3
BIO 470	Human Physiology	4
Up to 2 additional classes from major electives (https://catalog.cuw.edu/undergraduate/cuwcampus/arts-sciences/majors/biomedical-sciences-major/#electives)		
Total Hours		23-26

Research Track

Code	Title	Hours
Required Courses		
BIO 420	Molecular Biology	4
CHEM 242	Organic Chemistry II	4
CHEM 425	Biochemistry	4
Select at least 3 credits from the following:		3-4
BIO 399	Biology Internship	1-4
BIO 499	Undergraduate Research	1-4
CHEM 499	Undergraduate Research	1-4
<i>Electives</i>		
Select eight credits of major electives (https://catalog.cuw.edu/undergraduate/cuwcampus/arts-sciences/majors/biomedical-sciences-major/#electives)		8
Recommended Courses		
MATH 201	Calculus I	
Total Hours		23-24

Major Electives

Code	Title	Hours
BIO 285	Pathophysiology	3
BIO 351	Immunology	3
BIO 367 & BIO 368	Ecology of the Tropics and Ecology of the Tropics-Lab	4
BIO 381	Histology	3
BIO 399	Biology Internship ¹	1-4
BIO 420	Molecular Biology	4

BIO 430	Pharmacology	3
BIO 470	Human Physiology	4
BIO 499	Undergraduate Research ¹	1-4
CHEM 242	Organic Chemistry II	4
CHEM 399	Chemistry Internship	1-4
CHEM 425	Biochemistry	4
CHEM 426	Advanced Biochemistry	4
CHEM 499	Undergraduate Research ¹	1-4
PHIL 309	History and Philosophy of Science	3
RSC 302	Advanced Anatomy	4
SCI 275	Cosmogony	3

¹ No more than 4 credits of BIO 399, BIO 499, and/or CHEM 499 may count towards major requirements.