BIOCHEMISTRY MAJOR (M)

The goal of the Department of Physical Sciences at Concordia University Wisconsin 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.

Concordia University's biochemistry program is organically interdisciplinary as the curriculum includes coursework in general, organic, analytical, physical and biochemistry in addition to general, advanced, and molecular biology all while being supported by calculus and physics courses.

Program Learning Outcomes

Students will:

- Understand and apply fundamental biochemical concepts;
- Use common laboratory procedures/equipment, often as a member of a team, to gather meaningful data;
- Analyze and interpret data to arrive at appropriate conclusions;
- Apply principles of laboratory safety and biochemical hygiene;
- Perform undergraduate research and conduct effective searches of the biochemical literature;
- Communicate and summarize scientific information effectively and accurately in both oral and written form;
- Act ethically and responsibly, demonstrating an understanding of the role biochemistry plays in societal issues;
- Recognize that, though our scientific understanding of the universe continues to change, God's truth does not, for His ways are higher than our ways and His thoughts than our thoughts (Isaiah 55:9)

Curriculum

Code	Title	Hours
Core Requirements (https://catalog.cuw.edu/undergraduate/university/acad-prog/trad/core/)		**45**
Major Requirements [1]		**60-61**
Electives		**14**
Minor: Optional		
Total Hours		**120-121**

[1] The Bachelor of Science in Biochemistry cannot be earned in combination with majors or minors in Biology, Biomedical Sciences, Pharmaceutical Sciences, or Chemistry.

Major Requirements

Code	Title	Hours
Required Core Courses		
CHEM 1414	General Chemistry I (Lab Science - 4 credits)	
MATH 2010	Calculus I (Mathematics - 4 Credits)	
Required Courses		
BIO 1501	Functional Human Biology I	4
BIO 1502	Functional Human Biology II	4
BIO 4200	Molecular Biology	4
CHEM 1424	General Chemistry II	4
CHEM 2414	Organic Chemistry I	4
CHEM 2424	Organic Chemistry II	4
CHEM 2204	Analytical Chemistry	4
CHEM 3404	Physical Chemistry: Thermodynamics	4
CHEM 3214	Biochemistry	4
CHEM 4224	Advanced Biochemistry	4
CHEM 4911	Chemistry Senior Seminar I	1
CHEM 4921	Chemistry Senior Seminar II	1
MATH 2020	Calculus II	3-4
or MATH 2050	Statistics I	
PHYS 1714	University Physics I	4
PHYS 1724	University Physics II	4
Select at least 7 credits of the following:		*7*
BIO 2600	Biology of Microorganisms (4 credits)	
BIO 3200	Cell Biology (4 credits)	
BIO 3400	Genetics (4 credits)	
BIO 4300	Pharmacology (3 credits)	
Total Hours		**60-61**

Plan

Course	Title	Hours
Semester 1		
CHEM 1414	General Chemistry I	4
ENG 1040	Introduction to Writing	3
HHP 1100	Stewardship of the Body	1
CCE 1030	Western Thought & Worldview	3
BIO 1501	Functional Human Biology I	4
	Hours	**15**
Semester 2		
CHEM 1424	General Chemistry II	4
REL 1100	Christian Faith	3
COMM 1100 or COMM 2100	Public Speaking or Interpersonal Communication	3
CCE 1040	Science & Humanity	3
BIO 1502	Functional Human Biology II	4
	Hours	**17**
Semester 3		
PHYS 1714	University Physics I	4
CHEM 2414	Organic Chemistry I	4
CCE 1010	Christian Citizen	3
HHP ACTIVITY		1
MATH 2010	Calculus I	4
	Hours	**16**
Semester 4		
CHEM 2424	Organic Chemistry II	4
PHYS 1724	University Physics II	4
CCE 1020	Western Culture & Worldview	3
MATH 2020 or MATH 2050	Calculus II or Statistics I	3-4
	Hours	**14-15**
Semester 5		
CHEM 3404	Physical Chemistry: Thermodynamics	4
CHEM 3214	Biochemistry	4
SOCIETY AND CULTURE		3
HUMAN CREATIVITY & EXPRESSION		3
CHEM 4990	Undergraduate Research	1
	Hours	**15**

Semester 6		
CHEM 4334	Advanced Organic Chemistry	4
REL 1000	The Bible	3
ELECTIVE OR MINOR		3
CHEM 2204	Analytical Chemistry	4
	Hours	**14**
Semester 7		
MAJOR ELECTIVE		4
FAITH & LIFE		3
HUMAN BEINGS & BEING HUMAN		3
CHEM/BIO ELECTIVE		3
CHEM 4911	Chemistry Senior Seminar I	1
	Hours	**14**
Semester 8		
MAJOR ELECTIVE		4
BIO 4200	Molecular Biology	4
ELECTIVE OR MINOR		3
ELECTIVE OR MINOR		3
CHEM 4921	Chemistry Senior Seminar II	1
	Hours	**15**
	Total Hours	**120-121**

Course options and schedule are subject to change.