



# BIOCHEMISTRY

Students majoring in Biochemistry take a selection of chemistry and biology courses that apply the fundamentals of chemistry to living systems. Students in the major select one of the following concentrations: 1) Research and Industry, 2) Pre-Medical, or 3) Pre-Pharmacy. Biochemistry is a great choice if you are planning a career in the biochemical or pharmaceutical industry, or planning to pursue graduate studies in health care.



## SCAN TO FIND:

- Featured courses.
- Program requirements and more!

## BEYOND THE CLASSROOM

### HANDS-ON EXPERIENCE

Under the guidance of faculty, Biochemistry students participate in chemistry research. Many research students are co-authors on published chemistry research papers while others present their work at regional professional meetings. Cooperative education provides real-world experience in industrial settings or research labs in Greater Cincinnati and have often led to full-time positions.



### FURTHER YOUR EDUCATION

Students graduating with a Biochemistry degree may choose to pursue graduate degrees in biochemistry or in health care fields such as medicine, pharmacy, physical therapy, or physician assistant studies. Students may also enter the workforce as a researcher in a biomedical lab. Students interested in preparing for a career in health care at the graduate level are encouraged to contact the Health Professions Advising Committee ([hpac@msj.edu](mailto:hpac@msj.edu)).

## CAREERS IN BIOCHEMISTRY

DOCTOR

LAB TECHNICIAN

PHARMACIST

PHYSICIAN ASSISTANT

RESEARCH SCIENTIST

TEACHER

## AFFORDABLE EDUCATION

# \$5,000

### SCHMIDLAPP SCHOLARSHIP

Open to women majoring in biology, chemistry, computer science, or math. Based on academic talent and location. The deadline to apply is January 31. Download an application at [www.msj.edu/aid-forms](http://www.msj.edu/aid-forms).

## ALUMNI SUCCESS

# 100%

### CAREER OUTCOMES RATE

100% of 2022 School of Behavioral & Natural Sciences graduates were successfully employed, enrolled in graduate studies, or volunteering within six months of graduation. The knowledge rate for this survey was 74%.



# MOUNT ST. JOSEPH UNIVERSITY®

## SCHOOL OF BEHAVIORAL & NATURAL SCIENCES

Office of Admission  
513-244-4531 | 800-654-9314  
[www.msj.edu](http://www.msj.edu) | [admission@msj.edu](mailto:admission@msj.edu)

Eric Johnson, Ph.D.  
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# BIOCHEMISTRY RESEARCH AND INDUSTRY MAJOR - BACHELOR OF SCIENCE

FIRST YEAR-SEMESTER #1	FIRST YEAR- SEMESTER #2	UNIVERSITY CORE
BIO 111 Principles of Biology I 4	CHE 112 General Chemistry II 3	COMMON GOOD
BIO 111A Prin. of Biology I Lab 0	CHE 112A Gen. Chem II Lab 1	CORE 115 Common Ground Code COR
CHE 111 General Chemistry I 3	MTH 194 Calculus II 4	Justice & the Common Good Code JCG
CHE 111A Gen. Chem. I Lab 1	COM 100/ ENG 101 3	Ethics Code CE
MTH 193 Calculus I 4	SOC 103 3	Experiential Learning Code EXP
CORE 115 3	Core requirement 3	Core Capstone Code CCP
SECOND YEAR-SEMESTER #1	SECOND YEAR-SEMESTER #2	HUMANITIES
CHE 211 Organic Chemistry I 3	CHE 212 Organic Chemistry II 3	Speech (COM 100) Code C
CHE 211A Org. Chem I Lab 1	CHE 212A Org. Chem II Lab 1	Writing (ENG 101) Code C
PHY 201 General Physics I 3	CHE 200 Chem. Soph. Seminar 1	Literature (ENG) Code CL
PHY 201A Gen. Physics I Lab 1	PHY 202 General Physics II 3	Art or Music Code CAM
CED 220 Foundations of Professionalism 1	PHY 202A Gen. Physics II Lab 1	History Code CH
COM 100/ENG 101 3	Core requirement 3	Religious Studies Code CR
Core requirement 3	Core requirement 3	Philosophy Code CP
THIRD YEAR-SEMESTER #1	THIRD YEAR-SEMESTER #2	SCIENCES
CHE 314 Inter. Analytical Chem 3	CHE 315# or 360 or elective 3	Biology/Chemistry/Physics + Lab Code CN
CHE 314A Inter. Analytical Chem Lab 1	CHE 315A# or 360A or elective 1	Mathematics Code CMA
CHE 325 Biochemistry I 3	CHE 300 Chem. Junior Seminar 1	SOC 103 Our Social World Code CS
CHE 325A Biochem. I Lab 1	BIO 305/305A or 310/310A or 320/320A 4	Choose one discipline:
Core requirement 3	Core requirement 3	ECO 212 Microeconomics Code CEP
Core requirement 3	Core requirement 3	PSY 103 Psychology Code CEP
Core requirement 3		NOTES
FOURTH YEAR-SEMESTER #1	FOURTH YEAR-SEMESTER #2	Prerequisites:
CHE 350 Physical Chemistry I 3	CHE 326 Biochemistry II 3	Chemistry- College preparatory high school chemistry or the successful completion of a placement test.
CHE 350A Phys. Chem I Lab 1	CHE 326A Biochem. II Lab 1	Math- Three years of college preparatory high school mathematics including functions.
Core Capstone 3	CHE 355# or general credit 3	120 credits hours minimum needed to graduate.
Core requirement 3	CHE 355A# 1	*Students must have an appropriate math placement before enrolling in MTH 193 and CHE 111.
Elective 3	CHE 390 Research Problems in Chemistry 1	**Curriculum Guide does not replace advising by a faculty member within the Chemistry program.**
	CHE 400 Chem. Seminar & Capstone 1	
	BIO 305/305A or 310/310A or 320/320A 4	
	Electives to reach 120 credits	
<p>#Students take CHE 315/315A Instrumental Analysis with lab or CHE 355/355A Physical Chem. II with lab or CHE 360/360A Int. Inorganic Chem. with lab</p> <p>Students choose two from BIO 305 Microbiology; BIO 320 Genetics; BIO 310/310A Cell Biology with lab</p>		

# BIOCHEMISTRY PRE-MED MAJOR - BACHELOR OF SCIENCE

FIRST YEAR-SEMESTER #1	FIRST YEAR- SEMESTER #2	UNIVERSITY CORE
BIO 111 Principles of Biology I 4	BIO 112 Principles of Biology II 4	COMMON GOOD
BIO 111A Prin. of Biology I Lab 0	BIO 112A Prin. of Biology II Lab 0	CORE 115 Common Ground Code COR
CHE 111 General Chemistry I 3	CHE 112 General Chemistry II 3	Justice & the Common Good Code JCG
CHE 111A Gen. Chem. I Lab 1	CHE 112A Gen. Chem II Lab 1	Ethics Code CE
MTH 174 Statistics 3	COM 100/ ENG 101 3	Experiential Learning Code EXP
PSY 103 Intro to Psychology 3	SOC 103 3	Core Capstone Code CCP
CORE 115 3	Core requirement 3	HUMANITIES
		Speech (COM 100) Code C
		Writing (ENG 101) Code C
		Literature (ENG) Code CL
		Art or Music Code CAM
		History Code CH
		Religious Studies Code CR
		Philosophy Code CP
		SCIENCES
		Biology/Chemistry/Physics + Lab Code CN
		Mathematics Code CMA
		SOC 103 Our Social World Code CS
		Choose one discipline:
		ECO 212 Microeconomics Code CEP
		PSY 103 Psychology Code CEP
SECOND YEAR-SEMESTER #1	SECOND YEAR-SEMESTER #2	NOTES
CHE 211 Organic Chemistry I 3	CHE 212 Organic Chemistry II 3	Prerequisites:
CHE 211A Org. Chem I Lab 1	CHE 212A Org. Chem II Lab 1	Chemistry- College preparatory high school chemistry or the successful completion of a placement test.
PHY 201 General Physics I 3	CHE 200 Chem. Soph. Seminar 1	Math- Three years of college preparatory high school mathematics including functions.
PHY 201A Gen. Physics I Lab 1	PHY 202 General Physics II 3	120 credits hours minimum needed to graduate.
CED 220 Foundations of Professionalism 1	PHY 202A Gen. Physics II Lab 1	*Students must have an appropriate math placement before enrolling in MTH 174 and CHE 111.
COM 100/ENG 101 3	Core requirement 3	**Curriculum Guide does not replace advising by a faculty member within the Chemistry program.**
Core requirement 3	Core requirement 3	
THIRD YEAR-SEMESTER #1	THIRD YEAR-SEMESTER #2	
CHE 314 Inter. Analytical Chem 3	CHE 315# or 360 or elective 3	
CHE 314A Inter. Analytical Chem Lab 1	CHE 315A# or 360A or elective 1	
CHE 325 Biochemistry I 3	CHE 300 Chem. Junior Seminar 1	
CHE 325A Biochem. I Lab 1	BIO 198/198A or 305/305A or 310/310A or 320/320A 4	
BIO 197/197A or 305/305A or 310/310A or 320/320A 4	Core requirement 3	
Core requirement 3	Core requirement 3	
FOURTH YEAR-SEMESTER #1	FOURTH YEAR-SEMESTER #2	
Core Capstone 3	CHE 326 Biochemistry II 3	
BIO 197/197A or 305/305A or 310/310A or 320/320A or Elective 3/4	CHE 326A Biochem. II Lab 1	
Core requirement 3	CHE 400 Chem. Seminar & Capstone 1	
Elective 3	BIO 198/198A or 305/305A or 310/310A or 320/320A or Elective 3/4	
Elective 3	Electives to reach 120 credits	
<p>#Students take CHE 315/315A Instrumental Analysis with lab Or CHE 360/360A Intermediate Inorganic Chem with lab</p> <p>Students choose two from BIO 197 Human Anatomy &amp; Physiology I; BIO 198 Human Anatomy &amp; Physiology II; BIO 305 Microbiology; BIO 310 Cell Biology; BIO 320 Genetics (all with lab)</p>		

# BIOCHEMISTRY PRE-PHARMACY MAJOR - BACHELOR OF SCIENCE

FIRST YEAR-SEMESTER #1	FIRST YEAR- SEMESTER #2	UNIVERSITY CORE
BIO 111 Principles of Biology I 4	CHE 112 General Chemistry II 3	COMMON GOOD
BIO 111A Prin. of Biology I Lab 0	CHE 112A Gen. Chem II Lab 1	CORE 115 Common Ground Code COR
CHE 111 General Chemistry I 3	MTH 174 Statistics 3	Justice & the Common Good Code JCG
CHE 111A Gen. Chem. I Lab 1	COM 100/ ENG 101 3	Ethics Code CE
MTH 193 Calculus I 4	SOC 103 3	Experiential Learning Code EXP
PSY 103 Intro to Psychology 3	Core requirement 3	Core Capstone Code CCP
CORE 115 3		HUMANITIES
		Speech (COM 100) Code C
		Writing (ENG 101) Code C
		Literature (ENG) Code CL
		Art or Music Code CAM
		History Code CH
		Religious Studies Code CR
		Philosophy Code CP
		SCIENCES
		Biology/Chemistry/Physics + Lab Code CN
		Mathematics Code CMA
		SOC 103 Our Social World Code CS
		Choose one discipline:
		ECO 212 Microeconomics Code CEP
		PSY 103 Psychology Code CEP
SECOND YEAR-SEMESTER #1	SECOND YEAR-SEMESTER #2	NOTES
CHE 211 Organic Chemistry I 3	CHE 212 Organic Chemistry II 3	Prerequisites:
CHE 211A Org. Chem I Lab 1	CHE 212A Org. Chem II Lab 1	Chemistry- College preparatory high school chemistry or the successful completion of a placement test.
PHY 201 General Physics I 3	CHE 200 Chem. Soph. Seminar 1	Math- Three years of college preparatory high school mathematics including functions.
PHY 201A Gen. Physics I Lab 1	PHY 202 General Physics II 3	120 credits hours minimum needed to graduate.
CED 220 Foundations of Professionalism 1	PHY 202A Gen. Physics II Lab 1	*Students must have an appropriate math placement before enrolling in MTH 193 and CHE 111.
COM 100/ENG 101 3	ENG 300 Advanced Composition 3	**Curriculum Guide does not replace advising by a faculty member within the Chemistry program.**
Core requirement 3	Core requirement 3	
	Core requirement 3	
THIRD YEAR-SEMESTER #1	THIRD YEAR-SEMESTER #2	
CHE 314 Inter. Analytical Chem 3	CHE 315# or 360 or elective 3	
CHE 314A Inter. Analytical Chem Lab 1	CHE 315A# or 360A or elective 1	
CHE 325 Biochemistry I 3	CHE 300 Chem. Junior Seminar 1	
CHE 325A Biochem. I Lab 1	BIO 198 Human Anatomy & Physiology II 4	
BIO 197 Human Anatomy & Physiology I 4	BIO 198A Human Anatomy & Physiology II Lab 0	
BIO 197A Human Anatomy & Physiology I Lab 0	Core requirement 3	
Core requirement 3	Core requirement 3	
FOURTH YEAR-SEMESTER #1	FOURTH YEAR-SEMESTER #2	
Core Capstone 3	CHE 326 Biochemistry II 3	
BIO 215 Microbiology or Elective 3/4	CHE 326A Biochem. II Lab 1	
BIO 215A Microbiology Lab 0	CHE 400 Chem. Seminar & Capstone 1	
Core requirement 3	BIO 305 Microbiology or Elective 3/4	
Elective 3	BIO 305A Microbiology Lab 0	
Elective 3	Electives to reach 120 credits	
<p>#Students take CHE 315/315A Instrumental Analysis with lab Or CHE 360/360A Intermediate Inorganic Chem with lab</p>		

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**MOUNT ST. JOSEPH UNIVERSITY**®

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Mount St. Joseph University ("the University") is committed to providing an educational and employment environment free from discrimination or harassment on the basis of race, color, national origin, religion, sex, age, disability, sexual orientation, gender identity, veteran status or other minority or protected status. This commitment extends to the University's administration of its admission, financial aid, employment, and academic policies, as well as the University's athletic programs and other University-administered programs, services, and activities.

The University has designated the Vice President of Compliance Risk and Legal Affairs/General Counsel/Title IX Coordinator, (513) 244-4393, as the individual responsible for responding to inquiries, addressing complaints, and coordinating compliance with its responsibilities under Title IX of the Education Amendments of 1972 and other related federal and state civil rights laws. The University has designated the Chief Human Resources Officer, (513) 244-4979, as the individual responsible for responding to inquiries, issues, or complaints relating to discriminatory, harassing, or retaliatory conduct related to race, color, national origin, religion, age, disability, veteran status or any other legally protected status. The University has designated the Associate Provost for Academic Affairs, (513) 244-4614, as the individual responsible for responding for addressing formal complaints regarding compliance with its responsibilities under Section 504 of the Rehabilitation Act of 1973. 09-WO-002425/23/550