

# BIOCHEMISTRY

## REQUIREMENTS

**CORE CURRICULUM** The Core Curriculum is designed to foster critical thinking skills and introduce students to basic domains of thinking that transcend disciplines. The Core applies to all majors. Information on specific classes in the Core can be found at [marshall.edu/gened](http://marshall.edu/gened).

### CORE 1: CRITICAL THINKING

CODE	COURSE NAME	HRS	GRADE
FYS 100	First Year Seminar	3	_____
MTH 229	Critical Thinking Course	5	_____
_____	Critical Thinking Course	3	_____
<b>Additional University Requirements</b>			
_____	Writing Intensive (CHM 357 or 358)	4	_____
_____	Writing Intensive	3	_____
_____	Multicultural or International	3	_____
CHM 491	Capstone	2	_____

### CORE 2:

CODE	COURSE NAME	HRS	GRADE
ENG 101	Beginning Composition	3	_____
ENG 201	Advanced Composition	3	_____
CMM 103	Fund Speech-Communication	3	_____
MTH 229	Calculus/Analytic Geom I (CT)	5	_____
BSC 120/L	Principles of Biology I / Lab	3/1	_____
_____	Core II Humanities	3	_____
_____	Core II Social Science	3	_____
_____	Core II Fine Arts	3	_____

## MAJOR-SPECIFIC

All Biochemistry majors are required to take the following courses:

CODE	COURSE NAME	HRS	GRADE	CODE	COURSE NAME	HRS	GRADE
BSC 120/L	Principles of Biology I / Lab	3/1	_____	BSC 322	Principles of Cell Biology	4	_____
BSC 121/L	Principles of Biology II / Lab	3/1	_____	BSC 324	Principles of Genetics	4	_____
CHM 211	Principles of Chemistry I	3	_____	PHY 201	College Physics I	3	_____
CHM 217	Principles of Chemistry I Lab	2	_____	PHY 202	College Physics I Lab	1	_____
CHM 212	Principles of Chemistry II	3	_____	PHY 203	College Physics II	3	_____
CHM 218	Principles of Chemistry II Lab	2	_____	PHY 204	College Physics II Lab	1	_____
CHM 355	Organic Chemistry I	3	_____	MTH 229	Calculus/Analytic Geom I (CT)	5	_____
CHM 356	Organic Chemistry II	3	_____	_____	Biochemistry Elective	3-4	_____
CHM 361	Organic Chemistry II Lab	3	_____	_____	Biochemistry Elective	3-4	_____
CHM 305	Research Methods Chemistry	1	_____	_____	Biochemistry Elective	3-4	_____
CHM 358	Physical Chemistry (or 357 in Fall)	4	_____	_____	Biochemistry Elective	3-4	_____
CHM 365	Introductory Biochemistry	3	_____	_____	Free Elective	3	_____
CHM 366	Intro Biochemistry Lab	2	_____	_____	Free Elective	3	_____
CHM 467	Intermediate Biochemistry	3	_____	_____	Free Elective	3	_____
CHM 491	Capstone	2	_____	_____	Free Elective	2	_____
CHM 432	Seminar	0	_____				

## MAJOR INFORMATION

- Students are required to know and track their degree requirements for graduation or for entrance to a professional school.
- In addition to the Core General Education requirements, the College of Science requires 3 hours of Calculus, and 40 hours of upper level credit.
- Coursework listed as "elective" may vary for each student. Students are encouraged to use elective hours toward a minor or toward prerequisites.
- Students are strongly encouraged to select courses that meet two or more Core or College requirements. For example, a writing intensive literature course could satisfy the Core II Humanities requirement as well as the University writing intensive requirement.
- Course offerings and course attributes are subject to change each semester. Please consult each semester's schedule of courses for availability and attributes.
- Math is based on an ACT Mathematics score of 27 or higher. Students with an ACT Mathematics score less than 27 will be placed in the appropriate prerequisite mathematics and science courses.
- CHM 358 or 411 is recommended for students considering graduate school.
- The BSC coursework provides a Biological Sciences minor.
- A Grade Point Average of 2.0 is required 1) overall, 2) at MU, 3) in all required Chemistry courses, 4) in all Chemistry courses, and 5) in all required Chemistry courses taken at MU.
- Biochemistry Electives: Select from the following courses. At least one course must be 4 credit hours, and at least one must be a CHM course. BSC 302, 422, 428, 443, 448, 450, 456, CHM 345, 357, 358, 411, 448, 451, 465, 466.
- Double majors within the Department of Chemistry may include any majors other than the B.S., Major in Chemical Sciences. A double major of Forensic Chemistry with Biochemistry is also currently not permitted.

Area of Emphasis

Major Requirement

College Requirement

General Education Requirement

Milestone Course: This is a key success marker for your major. See your advisor to discuss the importance of this course in your plan of study.

# BIOCHEMISTRY

Students completing the Biochemistry major will be prepared for career opportunities in the biotechnology, forensics, environmental, pharmaceutical, agricultural, and medical fields. Students will also be well prepared for graduate-level study in biochemistry, biotechnology, and genetics and molecular biology. Additionally, Biochemistry is an excellent choice for students desiring to attend professional training in Medicine, Dentistry, Pharmacy, Law or Engineering.

FALL SEMESTER					SPRING SEMESTER					
CODE	COURSE NAME	HRS	GRADE		CODE	COURSE NAME	HRS	GRADE		
CHM 211	Principles of Chemistry I	3			BSC 121/L	Principles of Biology II / Lab	3/1			
CHM 217	Principles of Chemistry I Lab	2			CHM 212	Principles of Chemistry II	3			
BSC 120/L	Principles of Biology I / Lab	3/1			CHM 218	Principles of Chemistry II Lab	2			
ENG 101	Beginning Composition	3			MTH 229	Calculus/Analytic Geom I (CT)	5			
FYS 100	First Year Sem Crit Thinking	3								
UNI 100	Freshman First Class	1								
<b>TOTAL HOURS</b>				<b>16</b>	<b>TOTAL HOURS</b>				<b>14</b>	
Summer Term (optional):										
FALL SEMESTER					SPRING SEMESTER					
_____	Core I Critical Thinking	3			BSC 324	Principles of Genetics	4			
CHM 355	Organic Chemistry I	3			CHM 356	Organic Chemistry II	3			
ENG 201	Advanced Composition	3			CHM 361	Organic Chemistry Lab	3			
_____	Free Elective	3			CMM 103	Fund Speech Communication	3			
_____	Free Elective	3			_____	Core II Fine Arts	3			
<b>TOTAL HOURS</b>				<b>15</b>	<b>TOTAL HOURS</b>				<b>16</b>	
Summer Term (optional):										
FALL SEMESTER					SPRING SEMESTER					
BSC 322	Principles of Cell Biology	4			CHM 366	Intro Biochemistry Lab	2			
CHM 305	Research Methods Chemistry	1			CHM 467	Intermediate Biochemistry	3			
CHM 365	Introductory Biochemistry	3			PHY 203	College Physics II	3			
PHY 201	College Physics I	3			PHY 204	College Physics II Lab	1			
PHY 202	College Physics I Lab	1			_____	Core II Humanities	3			
_____	Core II Social Science (MC/I)	3			_____	Biochemistry Elective	3-4			
<b>TOTAL HOURS</b>				<b>15</b>	<b>TOTAL HOURS</b>				<b>15</b>	
Summer Term (optional):										
FALL SEMESTER					SPRING SEMESTER					
CHM 491	Capstone Experience (or CHM 490)	2			CHM 432	Chemistry Seminar	0			
_____	Writing Intensive	3			_____	Biochemistry Elective	3-4			
_____	Biochemistry Elective (CHM Course) or Free Elective	3-4			CHM 358	Physical Chemistry (or 357 in Fall)	4			
_____	Biochemistry Elective or Free Elective	3-4			_____	Biochemistry Elective (CHM Course)	3-4			
_____	Free Elective	2			_____	Biochemistry Elective (CHM Course) or Free Elective	3-4			
<b>TOTAL HOURS</b>				<b>13-15</b>	<b>TOTAL HOURS</b>				<b>16-19</b>	
Summer Term (optional):										

Area of Emphasis

Major Requirement

College Requirement

General Education Requirement

Milestone Course: This is a key success marker for your major. See your advisor to discuss the importance of this course in your plan of study.