


























BIOCHEMISTRY, B.S.









 - General Education Course

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

Major

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 <https://www.marshall.edu/gened/>.

Code	Title	Credit Hours
Core Curriculum		
<i>Core 1: Critical Thinking</i>		
FYS 100	First Yr Sem Critical Thinking	3
MTH 229 	Calculus/Analytic Geom I (CT)	5
	Critical Thinking Course	3
<i>Core 2</i>		
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  	Principles of Biology	4
	Core II Humanities	3
	Core II Social Science	3
	Core II Fine Arts	3
<i>Additional University Requirements</i>		
	Writing Intensive (CHM 357 or CHM 358)	3
	Writing Intensive	3
	Multicultural or International	3
CHM 491 	Capstone Experience	2
	or CHM 490  Internship	
Major-Specific		
BSC 121  	Principles of Biology	4
CHM 211  	Principles of Chemistry I	3
CHM 217  	Principles of Chem Lab I	2
CHM 212  	Principles Chemistry II	3
CHM 218  	Principles of Chem Lab II	2
CHM 355	Organic Chemistry I	3
CHM 356	Organic Chemistry II	3
CHM 361 	Intro Organic Chm Lab	3
CHM 305	Research Methods Chem (WI)	1
	Select one of the following:	4
	CHM 358 Physical Chemistry: Thermo. (WI) ¹	
	CHM 357 Physical Chemistry: Quantum (WI)	
CHM 365	Introductory Biochemistry	3
CHM 366 	Intro Biochemistry Lab	2
CHM 467	Intermediate Biochemistry	3
CHM 491 	Capstone Experience (C)	2

	or CHM 490  Internship	
CHM 432	Chemistry Seminar	0
BSC 322 	Principles Cell Biology	4
BSC 324	Principles of Genetics	4
PHY 201  	College Physics I	3
PHY 202  	General Physics I Laboratory	1
PHY 203 	College Physics II	3
PHY 204 	General Physics 2 Laboratory	1

Biochemistry Electives

Select from the following courses. At least one course must be 4 10-12 credit hours, and at least one must be a CHM course.

BSC 302	Principles of Microbiology	
BSC 422	Animal Physiology	
BSC 428	Neuroscience	
BSC 443	Microbial Genetics	
BSC 448	Introductory Immunology	
BSC 450	Molecular Biology	
CHM 345	Intro to Analytical Chem	
CHM 357	Physical Chemistry: Quantum	
CHM 358	Physical Chemistry: Thermo.	
CHM 411	Modern Instrument Methods	
CHM 448	Adv Inorganic Chemistry I	
CHM 451	Biological Mass Spectrometry	
CHM 465	Adv Organic Chemistry I	
CHM 466	Adv Organic Chemistry II	
Free Elective		3
Free Elective		3
Free Elective		3
Free Elective		2


¹ CHM 358 Physical Chemistry: Thermo. or CHM 411 Modern Instrument Methods is recommended for students considering graduate school.

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 2nd 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 semesters 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.
- The BSC coursework provides a Biological Sciences minor.





















- A Grade Point Average of 2.0 is required
 - a. overall,
 - b. at MU,
 - c. in all required Chemistry courses,
 - d. in all Chemistry courses, and
 - e. in all required Chemistry courses taken at MU.

 - General Education Course

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






Four Year Plan

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.




Course	Title	Credit Hours
First Year		
First Semester		
CHM 211  	Principles of Chemistry I	3
CHM 217  	Principles of Chem Lab I	2
BSC 120  	Principles of Biology	4
ENG 101 	Beginning Composition	3
FYS 100	First Yr Sem Critical Thinking	3
UNI 100	Freshman First Class	1
Credit Hours		16
Second Semester		
BSC 121  	Principles of Biology	4
CHM 212  	Principles Chemistry II	3
CHM 218  	Principles of Chem Lab II	2
MTH 229 	Calculus/Analytic Geom I (CT)	5
Credit Hours		14
Second Year		
First Semester		
	Core I Critical Thinking	3
CHM 355	Organic Chemistry I	3
ENG 201  	Advanced Composition	3
	Free Elective	3
	Free Elective	3
Credit Hours		15
Second Semester		
BSC 324	Principles of Genetics	4
CHM 356 	Organic Chemistry II	3
CHM 361 	Intro Organic Chm Lab	3
CMM 103  	Fund Speech-Communication	3
	Core II Fine Arts	3
Credit Hours		16

Third Year

First Semester



BSC 322 	Principles Cell Biology	4
CHM 305	Research Methods Chem	1
CHM 365	Introductory Biochemistry	3
PHY 201  	College Physics I	3
PHY 202  	General Physics I Laboratory	1
Core II Social Science (MC/I)		3
Credit Hours		15

Second Semester

CHM 366 	Intro Biochemistry Lab	2
CHM 467	Intermediate Biochemistry	3
PHY 203 	College Physics II	3
PHY 204 	General Physics 2 Laboratory	1
Core II Humanities		3
Biochemistry Elective		3-4
Credit Hours		15-16

Fourth Year

First Semester

CHM 491 	Capstone Experience	2
or	or Internship	
CHM 490 		
Writing Intensive		3
Biochemistry Elective (CHM Course) or Free Elective		3-4
Biochemistry Elective or Free Elective		3-4
Free Elective		2
Credit Hours		13-15

Second Semester

CHM 432	Chemistry Seminar	0
Biochemistry Elective		3-4
Select one of the following:		4
CHM 358	Physical Chemistry: Thermo. (WI)	
CHM 357	Physical Chemistry: Quantum (WI)	
Writing Intensive		3
Biochemistry Elective (CHM Course) or Free Elective		3-4
Biochemistry Elective (CHM Course) or Free Elective		3-4
Credit Hours		16-19
Total Credit Hours		120-126