BIOCHEMISTRY, FORENSIC CHEMISTRY EMPHASIS

- 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.

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		
Core 1: Critical Thinking		
FYS 100	First Yr Sem Critical Thinking	3
MTH 229	Calculus/Analytic Geom I (CT)	5
Critical Thinking Course		3
Core 2		
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 I	3
BSC 120L	Principles of Biology I Lab	1
Core II Humanities		
Core II Social Science		
Core II Fine Arts		
Additional University Requirements		
Writing Intensive (CHM 357 or CHM 358)		3
Writing Intensive		3
Multicultural or Internationall		3
CHM 491	Capstone Experience	2
or CHM 490	Internship	
Major-Specific		
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 345	Intro to Analytical Chem	4
CHM 355	Organic Chemistry I	3
CHM 356	Organic Chemistry II	3
CHM 361	Intro Organic Chm Lab	3
CHM 305	Research Methods Chem	1
Select one of the following:		3
CHM 357	Physical Chemistry: Quantum	
CHM 358	Physical Chemistry: Thermo.	
CHM 365	Introductory Biochemistry	3
CHM 366	Intro Biochemistry Lab	2
CHM 411	Modern Instrument Methods	4
CHM 467	Intermediate Biochemistry	3
CHM 491	Capstone Experience	2
or CHM 490	Internship	
CHM 432	Chemistry Seminar	0
FSC 224	Intro to Forensic Science	4
CJ 200	Intro to Criminal Justice	3
or CJ 211	Intro to Law Enforcement	
Choose one:		3
CJ 314	Crime Scene & Investigations	
CJ 323	Criminal Procedure	
CJ 422	Law of Evidence	
CS 110	Computer Science I	3
BSC 121	Principles of Biology II	3
BSC 121L	Prin of Biology II Lab	1
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		*10-12*
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	Principles of Microbiology	
BSC 332 & BSC 332L	Principles of Human Anatomy and Prin of Human Anatomy Lab	
BSC 334 & BSC 334L	Principles of Human Physiology and Prin of Human Physiology Lab	
BSC 422	Animal Physiology	
BSC 428	Neuroscience	
BSC 443	Microbial Genetics	
BSC 448	Introductory Immunology	
BSC 450	Molecular Biology	
BSC 456	Genes and Development	
CHM 357	Physical Chemistry: Quantum	
CHM 358	Physical Chemistry: Thermo.	
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		2

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

Major Information

- Students are required to know and track their degree requirements for graduation or for entrance ro 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:

  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.

Semester 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, genetics and molecular biology. Additionally, Biochemistry is an excellent choice for students desiring to attend professional training in medicine, dentistry, pharmacy, law or engineering.

- General Education Course

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First Year		
First Semester		**Credit Hours**
CHM 211	Principles of Chemistry I	3
CHM 217	Principles of Chem Lab I	2
BSC 120	Principles of Biology I	3
BSC 120L	Principles of Biology I Lab	1
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	3
BSC 121L	Prin of Biology II Lab	1
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 course		3
CHM 355	Organic Chemistry I	3
ENG 201	Advanced Composition	3
BSC 324	Principles of Genetics	4
Free Elective		2
	Credit Hours	**15**
Second Semester		
CHM 356	Organic Chemistry II	3
CHM 361	Intro Organic Chm Lab	3
CMM 103	Fund Speech-Communication	3
PHY 201	College Physics I	3
PHY 202	General Physics I Laboratory	1
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 203	College Physics II	3
PHY 204	General Physics 2 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
Core II: Humanities		3
CHM 411	Modern Instrument Methods (Biochemistry elective)	4
Free Elective		3
	Credit Hours	**15**
Fourth Year		
First Semester		
CHM 491 or CHM 490	Capstone Experience or Internship	2
Writing Intensive course		3
CHM 345	Intro to Analytical Chem (Biochemistry elective)	4
FSC 224	Intro to Forensic Science	4
CJ 211 or CJ 200	Intro to Law Enforcement (PR for CJ 314) or Intro to Criminal Justice	3
	Credit Hours	**16**
Second Semester		
CHM 432	Chemistry Seminar	0
Biochemistry elective		3
CHM 358	Physical Chemistry: Thermo.	4
CS 110	Computer Science I	3

Select one of the following:		3
CJ 314	Crime Scene Investigation	
CJ 323	Criminal Procedure	
CJ 422	Law of Evidence	
Free Elective		2
	Credit Hours	**15**
	Total Credit Hours	**122**