

























# CHEMICAL SCIENCES, 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
<b>Core Curriculum</b>		
<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
CHM 211  	Principles of Chemistry I	5
& CHM 217 	and Principles of Chem Lab I	
	Core II Humanities	3
	Core II Social Science	3
	Core II Fine Arts	3
<i>Additional University Requirements</i>		
	Writing Intensive (CHM 357 or 358)	3
	Writing Intensive	3
	Multicultural or International	3
CHM 491 	Capstone Experience	2
	or CHM 490  Internship	
<b>Major-Specific</b>		
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	1
Select one of the following:		
CHM 357	Physical Chemistry: Quantum (WI)	
CHM 358	Physical Chemistry: Thermo. (WI)	
CHM 345 	Intro to Analytical Chem	4
CHM 448 	Adv Inorganic Chemistry I	4
CHM 491 	Capstone Experience (C)	2

	or CHM 490  Internship	
CHM 432	Chemistry Seminar	0
300/400 CHM Elective		3
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

### Electives

Science or Math Elective	4
Science or Math Elective	4
Science or Math Elective	4
Science or Math Elective	4
Free Elective	3
Free Elective	3
Free Elective	3
Free Elective	3
Free Elective	3
Free Elective	3
Free Elective	3
Free Elective	1

Students interested in careers in technical sales, management, and marketing in the chemical industry are encouraged to take the following courses as electives:


ECN 250	Principles Microeconomics
ECN 253	Principles Macroeconomics
MKT 340	MKT Concepts and Applications
MKT 440	Sales Management
MKT 442	Market Research
MGT 320	Principles of Management

## 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 semesters. 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.
- 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.

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## Four Year Plan

This major in chemistry is intended for students needing a broadly based, flexible science background. Degrees offered by the Department of Chemistry provide a program of studies that allows the individual to: obtain high quality instruction in chemistry as a scientific discipline, obtain a sound background in preparation for advanced studies, meet the qualifications of professional chemists and accrediting agencies, or prepare for a professional career in medicine, dentistry, pharmacy, medical technology, engineering, nursing and other fields.

Course	Title	Credit Hours
<b>First Year</b>		
<b>First Semester</b>		
CHM 211 	Principles of Chemistry I	3
CHM 217 	Principles of Chem Lab I	2
MTH 229 	Calculus/Analytic Geom I (CT)	5
FYS 100	First Yr Sem Critical Thinking	3
UNI 100	Freshman First Class	1
Credit Hours		14
<b>Second Semester</b>		
ENG 101 	Beginning Composition	3
CHM 212 	Principles Chemistry II	3
CHM 218 	Principles of Chem Lab II	2
Core I Critical Thinking		3
Science or Math Elective		4
Credit Hours		15
<b>Second Year</b>		
<b>First Semester</b>		
CHM 355 	Organic Chemistry I	3
PHY 201 	College Physics I	3
PHY 202 	General Physics I Laboratory	1
Core II Social Science		3
ENG 201 	Advanced Composition	3
Science or Math Elective		4
Credit Hours		17
<b>Second Semester</b>		
CHM 356	Organic Chemistry II	3
CHM 361	Intro Organic Chm Lab	3
PHY 203 	College Physics II	3
PHY 204 	General Physics 2 Laboratory	1
CMM 103 	Fund Speech-Communication	3
Credit Hours		13

### Third Year

#### First Semester





300/400 CHM Elective	3	
CHM 305	Research Methods Chem	1
Core II Fine Arts		3
Writing Intensive		3
Free Elective		3
Free Elective		3
Credit Hours		16

#### Second Semester

Select one of the following:		4
CHM 358	Physical Chemistry: Thermo. (WI)	
CHM 357	Physical Chemistry: Quantum (WI)	
Science or Math Elective		4
Core II Humanities		3
Free Elective		3
Free Elective		1
Credit Hours		15

### Fourth Year

#### First Semester

CHM 345 	Intro to Analytical Chem	4
CHM 491 	Capstone Experience	2
or	or Internship	
CHM 490 		
CHM 448 	Adv Inorganic Chemistry I	4
Writing Intensive		3
Free Elective		3
Credit Hours		16

#### Second Semester

CHM 432	Chemistry Seminar	0
Science or Math Elective		4
Multicultural or International		3
Free Elective		3
Free Elective		3
Free Elective		1
Credit Hours		14
Total Credit Hours		120

<sup>1</sup> Or CHM 357 Physical Chemistry: Quantum in Fall (WI)