

**College of Science - Chemistry, BS with Concentration in Analytical Chemistry**

Catalog Year: 2019 - 2020			Grades	
Mason Core Requirements: 30 credits	Course Information	Credits	Earned	Needed
Written Communication:	ENGH 101 (100)	3		
Oral Communication:		3		
*Quantitative Reasoning	*Satisfied by Major Requirements			
*Information Technology	*Must take CDS 130 for Concentration Requirement	3		
Arts		3		
Global Understanding		3		
Literature		3		
*Natural Science	*Satisfied by Major Requirements			
Social & Behavioral Sciences		3		
Western Civilization/World History		3		
Written Communication:	ENGH 302	3		
Synthesis/Capstone		3		
<p align="center"><b>Major Requirements with Concentration in Analytical Chemistry (77 credits)</b> Students must complete the chemistry program requirements with a minimum GPA of 2.30 and present no more than two courses with a grade of 'D' (1.00) in CHEM coursework at graduation. Major termination policy: No chemistry, math, or science course that is required for the major may be attempted more than three times. Students who do not successfully complete such a course with a grade of C or better by the third attempt may be terminated from the major</p>				
CHEM 211/213	General Chemistry I with Lab	3/1		
CHEM 212	General Chemistry II	3		
CHEM 214	General Chemistry Laboratory II	1		
CHEM 313	Organic Chemistry I	3		
CHEM 314	Organic Chemistry II	3		
CHEM 315	Organic Chemistry Lab I	2		
CHEM 318	Organic Chemistry Lab II	2		
CHEM 321	Quantitative Chemical Analysis	4		
CHEM 331	Physical Chemistry I	3		
CHEM 332	Physical Chemistry II	3		
CHEM 336	Physical Chemistry Lab I 1	2		
CHEM 337	Physical Chemistry Lab II	2		
CHEM 422	Instrumental Methods of Chemical Analysis	3		
CHEM 423	Instrumental Methods of Chemical Analysis Laboratory	2		
CHEM 427 or CHEM 355, 451, or 452	Aquatic Environmental Chemistry or Undergraduate Research or Special Projects	3		
CHEM 463	General Biochemistry I	4		
CHEM 441	Properties and Bonding of Inorganic Compounds	3		
CHEM 465 or CHEM 445	Biochemistry Lab or Inorganic Preparations and Techniques	2		
CHEM 424 or CHEM 425	Principles of Chemical Separation or Electroanalytical Chemistry	3		
MATH 113	Analytic Geometry and Calculus I	4		
MATH 114	Analytic Geometry and Calculus II	4		
MATH 213	Analytic Geometry and Calculus III	3		
PHYS 160/161 and 260/261	University Physics I & II with Labs or	8		
GEOL 101	Introductory Geology I (Mason Core)	4		
GEOL 306	Soil Science	3		
EVPP 210 or BIOL 213	Environmental Biology: Molecules and Cells or Cell Structure and Function	4		
<b>Supporting Electives (6 credits):</b>				
BENG 101 or STAT 250	Intro to Bioengineering or Introductory Statistics I	3		
ECE 101 or CHEM 620	Intro to Electrical and Computer Engineering or Modern Instrumentation	3		
<b>Degree Notes</b>				
Approx. 13 credits may be completed with elective courses to bring the degree total to 120 with 45 credits at the 300/400 level.				
<b>Advisor Notes:</b>				

# Sample Schedule: BS Analytical

## FRESHMAN YEAR (29 CR)

### Semester 1

CHEM 211, 213 General Chemistry I	4
MATH 113 Anal. Geom. & Calc. I	4
HIST requirement	3
ENGH 101	3
	<b>14</b>

### Semester 2

CHEM 212, 214 General Chemistry II	4
MATH 114 Anal. Geom. & Calc. II	4
BIOL 213 Cell Structure & Function	4
COMM requirement	3
	<b>15</b>

## SOPHOMORE YEAR (31 CR)

### Semester 3

CHEM 313 Organic Chemistry I	3
CHEM 315 Organic Chemistry Lab I	2
PHYS 160 University Physics I	3
PHYS 161 University Physics Lab I	1
MATH 213 Anal. Geom. & Calc. III	3
IT requirement - CDS 130	3
	<b>15</b>

### Semester 4

CHEM 314 Organic Chemistry II	3
CHEM 318 Organic Chemistry Lab II	2
CHEM 321 Quant. Chem. Analysis	4
PHYS 260 University Physics II	3
PHYS 261 University Physics Lab II	1
Literature requirement	3
	<b>16</b>

## JUNIOR YEAR (29 CR)

### Semester 5

CHEM 331 Physical Chemistry I	3
CHEM 336 Physical Chemistry Lab I	2
CHEM 463 Gen. Biochemistry I	4
ENGH 302	3
Social and Behavioral Sciences req.	3
	<b>15</b>

### Semester 6

CHEM 332 Physical Chemistry II	3
CHEM 337 Physical Chemistry Lab II	2
CHEM Elective	3
Analytical area req.	3
Fine Arts requirement	3
	<b>14</b>

## SENIOR YEAR (31 CR)

### Semester 7

CHEM 441 Prop./Bond. Inorg. Comp.	3
CHEM 422 Instr. Meth. Chem. Anal.	3
Global Understanding requirement	3
CHEM Elective	3
Analytical area requirement	3
	<b>15</b>

### Semester 8

CHEM 445 or CHEM 465 Lab	2
CHEM 423 Instr. Meth. Chem. Anal. Lab	2
Synthesis requirement	3
Electives	9
	<b>16</b>

Note: Mason Core courses and Electives can generally be taken during any semester. The major degree requirements are shown in the order in which they should be taken so that pre- and co-requisites are satisfied.