B.S. in Chemistry: Concentration in Analytical Chemistry

American Chemical Society Certified Degree

Effective Fall, 2018

Chemistry (CHEM) (46 credits)

General Chemistry lecture and lab	□ 211 (3)	□ 213 (1)	□ 212 (3)	□ 214 (1)
Organic Chemistry lecture and lab	□ 313 (3)	□ 315(2)	□ 314 (3)	□ 318 (2)
Quantitative Chemical Analysis	□ 321 (4)			
Physical Chemistry lecture and lab	□ 331 (3)	□ 336 (2)	□ 332 (3)	□ 337 (2)
Instrumental Methods of Chemical Analysis and Lab	□ 422 (3)	□ 423 (2)		
Prop. and Bonding of Inorganic Compounds	□ 441 (3)			
General Biochemistry I	□ 463 (4)			
Inorganic Preparations and Techniques Lab	□ 445 (2)	**-or-** Biochemistry Lab		□ 465 (2)

Chemistry Electives (CHEM) (6 credits)

Principles of Chemical Separation [prereq: CHEM 332 or 442; Spring, even years]	□ 424 (3)	**-or-**	Electroanalytical Chemistry [prereq: CHEM 332 or 442; Fall, odd years]	□ 425 (3)
Aquatic Environmental Chemistry [Spring, even years]	□ 427 (3)	**-or-**	Undergraduate research	□355 or 451 or 452 (3)

Analytical Area Courses (6 credits)

Introduction to Bioengineering	□ BENG 101 (3)	**-or-**	Introductory Statistics	□ STAT 250 (3)
Intro. to Electrical & Computer Engineering	□ ECE 101 (3)	**-or-**	Modern Instrumentation	□ CHEM 620 (3)

Mathematics (MATH) (11 credits)

Analytic Geometry and Calculus	□ 113 (4) (**-or-** 123-124)	□ 114 (4)	□ 213 (3)

Physics (PHYS) (8 credits)

University Physics lecture and lab	□ 160 (3)	□ 260 (3)	□ 161 (1)	□ 261 (1)

Biology (BIOL) (4 credits)

Cell Structure and Function	□ 213 (4)

Mason Core (30 credits) (approved courses are listed in the University Catalog)

Written Communication	□ ENGH 101 (3)	**-and-**	□ ENGH 302 (3)
Oral Communication	□ COMM 100 -**or-** 101 (3)		
Western Civilization/World History	□ HIST 100 -**or-** 125 (3)		
Information Technology	□ CDS 130 (3)		
Literature	□ ___ (3)		
Fine Arts	□ ___ (3)		
Social and Behavioral Sciences	□ ___ (3)		
Global Understanding	□ ___ (3)		
Synthesis	□ ___ (3)		

Electives (9 credits)

From any area	□ ___

TOTAL CREDITS REQUIRED: 120 Minimum (of which 45 must be upper-division ≥ 300 level); overall GPA ≥ 2.00; major requirements GPA ≥ 2.30; maximum of two courses of CHEM with a "D" grade. **All CHEM prerequisite courses require a grade of C or better.** 12/1/17

Sample Schedule: BS Analytical

FRESHMAN YEAR (29 CR)

Semester 1		**Semester 2**	
CHEM 211, 213 General Chemistry I	4	CHEM 212, 214 General Chemistry II	4
MATH 113 Anal. Geom. & Calc. I	4	MATH 114 Anal. Geom. & Calc. II	4
HIST requirement	3	BIOL 213 Cell Structure & Function	4
ENGH 101	3	COMM requirement	3
	14		**15**

SOPHOMORE YEAR (31 CR)

Semester 3		**Semester 4**	
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
PHYS 160 University Physics I	3	CHEM 321 Quant. Chem. Analysis	4
PHYS 161 University Physics Lab I	1	PHYS 260 University Physics II	3
MATH 213 Anal. Geom. & Calc. III	3	PHYS 261 University Physics Lab II	1
IT requirement - CDS 130	3	Literature requirement	3
	15		**16**

JUNIOR YEAR (29 CR)

Semester 5		**Semester 6**	
CHEM 331 Physical Chemistry I	3	CHEM 332 Physical Chemistry II	3
CHEM 336 Physical Chemistry Lab I	2	CHEM 337 Physical Chemistry Lab II	2
CHEM 463 Gen. Biochemistry I	4	CHEM Elective	3
ENGH 302	3	Analytical area req.	3
Social and Behavioral Sciences req.	3	Fine Arts requirement	3
	15		**14**

SENIOR YEAR (31 CR)

Semester 7		**Semester 8**	
CHEM 441 Prop./Bond. Inorg. Comp.	3	CHEM 445 or CHEM 465 Lab	2
CHEM 422 Instr. Meth. Chem. Anal.	3	CHEM 423 Instr. Meth. Chem. Anal. Lab	2
Global Understanding requirement	3	Synthesis requirement	3
CHEM Elective	3	Electives	9
Analytical area requirement	3		
	15		**16**

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.

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