



Winona State University
Four-Year Program Map

Created on 8/27/2018
Effective Fall 2018

Program: **Chemistry - General (BS)[†]**
Emphasis (optional): **Pre-Forensics**

Fall Semester				Spring Semester		
	Course	Requirement Met	SH	Course	Requirement Met	SH
Year 1	CHEM 212 Principles of Chemistry I	Major/GE Goal 3	4	CHEM 213 Principles of Chemistry II	Major/GE Goal 3	4
	MATH 120 Precalculus or 212 Calculus I (Major)	GE Goal 4	4	MATH 212 Calculus I or 213 Calculus II	Major	4
	ENG 111 College Reading & Writing	GE Goal 1	4	CMST 191 Public Speaking	GE Goal 1	3
	SOC 210 Crime and Justice in America	GE Goal 9	3	BIOL 241 Basics of Life	Major Elective/PREF	4
	Orientation	Recommended	1			
	<i>NOTE: Math Requirements are based on the major; however, a student's math placement is based on ACT score. It may be necessary for a student to take more than one major course.</i>			<i>NOTE: It is highly recommended that students TA for CHEM 190 during their sophomore, junior, or senior year</i>		
First-Year Fall Semester Credit Hour Total			16	First-Year Spring Semester Credit Hour Total		15
Year 2	CHEM 360 Chemical Information	Major/OI	2	CHEM 340 Organic Chemistry Survey or CHEM351*	Major	4-5
	PHYS 201 Gen Physics I or 221 Univ Physics I [†]	Major	4	CHEM 320 Environmental Chemistry* OR	Major/GE Goal 10	3-4
	MATH 213 Calculus II or General Education	Major/GE Goals 5-8	3-4	General Education ^a	GE Goals 5-8	
	CHEM 350* or General Education ^a	Major/GE Goals 5-8	3-4	SOC 424 Ethical Issues in Criminal Justice	Major Elective/PREF	3
	SOC 315 Criminology	PREF	3	PHYS 202 Gen Physics II or 222 Univ Physics II [†]	Major	4
	<i>NOTE: GE Goals 5-10 and Physical Development/Wellness can be taken in any semester. CHEM 350 may be taken instead of CHEM 340 if planning to take CHEM 351 as an elective.</i>			<i>NOTE: Students must earn a minimum of 40 credits at the 300-400 level. CHEM 320 offered alternating years.</i>		
			15-17	Second-Year Spring Semester Credit Hour Total		14-16
Year 3	CHEM 412 Physical Chemistry I	Major/CAI	3	CHEM 426 Analytical Chemistry II	Major/WI	4
	CHEM 413 Physical Chemistry I Lab	Major/WI	1	General Education OR	GE Goals 5-8	3-4
	CHEM 425 Analytical Chemistry I	Major	4	CHEM 320 Environmental Chemistry*	Major/GE Goal 10	
	BIOL 308 Cell Biology	Major Elect./PREF/W	3	BIOL 310 Genetics	Major Elect/PREF/CAI	3
	General Education	GE Goals 5-8	3	General Education	GE Goals 5-8	3
	Physical Development and Wellness OR	PDW	1-3	Physical Development and Wellness OR	PDW	1-3
	General Education	GE Goals 5-8		General Education	GE Goals 5-8	
	<i>NOTE: Students must earn 16 credits of CHEM/BIOL electives for major.</i>			<i>NOTE:</i>		
Third-Year Fall Semester Credit Hour Total			15-17	Third-Year Spring Semester Credit Hour Total		14-17
Year 4	CHEM 405 Biochemistry AND CHEM 406 Biochem Lab	Major	4	CHEM 475 Seminar in Chemistry	Major/OI	1
	CHEM 450 Advanced Inorganic Chemistry	Major	4	CHEM 407 Biochemistry II AND CHEM 408 Biochem II Lab	Major Elective/PREF/WI	4
	BIOL 430 Molecular Biology	Major Elective/PREF	3	General Education	GE Goals 5-8	3
	General Education	GE Goals 5-8	3	General Education	GE Goals 5-8	3
	Physical Development and Wellness (if not taken earlier)	PDW	1-2	STAT 210 (Statistics) or STAT 305 (Biometry)	PREF	3
	<i>NOTE: It is highly recommended that students TA for CHEM 190 during their sophomore, junior, or senior year</i>			<i>NOTE:</i>		
Fourth-Year Fall Semester Credit Hour Total			14-16	Fourth-Year Spring Semester Credit Hour Total		14

^a **Must** select 2 GE Goal courses that cover 2 goal areas each, e.g. PHIL 330 (Biomedical Ethics)

[†] **Note**: this major will be ACS certified if students take the University Physics sequence (PHYS 221&222).

Total Credit Hours (SH): 120