



Winona State University
Four-Year Program Map

Created on 9/3/2024
Effective Fall 2023

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	
	CJS 210 Crime & Justice in America	PREF/GE Goal 9	3	BIOL 241 Basics of Life	Major Elect/PREF	4	
	OR 100 Orientation	Recommended	1				
	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.				NOTE: It is highly recommended that students TA for CHEM 190 during their sophomore, junior, or senior year		
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 Principles of Organic Chemistry II*	Major	4	
	PHYS 201 Gen Physics I or 221 Univ Physics I [†]	Major	4	CHEM 320 Environmental Chemistry** OR General Education Course ^a	Major/GE Goal 10 OR GE Goal 5-8	3-4	
	MATH 213 Calculus II or General Education Course	Major/GE Goal 5-8	3-4	CJS 424 Ethical Issues in Criminal Justice	Major Elect/PREF	3	
	CHEM 350 Principles of Organic Chemistry I* or General Education Course ^a	Major/GE Goal 5-8	3-4	PHYS 202 Gen Physics II or 222 Univ Physics II [†]	Major	4	
	CJS 315 Criminology	PREF	3	NOTE: *Students must earn a minimum of 40 credits at the 300-400 level. **CHEM 320 offered alternating years.			
	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.						
Second-Year Fall Semester Credit Hour Total			15-17	Second-Year Spring Semester Credit Hour Total			14-15
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 Course or CHEM 320 Environmental Chemistry**	GE Goal 5-8 OR Major/GE Goal 10	3-4	
	CHEM 425 Analytical Chemistry I	Major	4	BIOL 310 Genetics	Major Elect/PREF/CAI	3	
	BIOL 308 Cell Biology	Major Elect/PREF/WI	3	General Education Course	GE Goal 5-8	3	
	Physical Development & Wellness Course OR General Education Course	PDW/GE Goal 5-8	1-3	Physical Development & Wellness Course OR General Education Course	PDW/GE Goal 5-8	1-3	
	General Education Course	GE Goal 5-8	3	NOTE:**CHEM 320 offered alternating years.			
	NOTE: Students must earn 16 credits of CHEM/BIOL electives for major.						
Third-Year Fall Semester Credit Hour Total			15-17	Third-Year Spring Semester Credit Hour Total			14-16
Year 4	CHEM 405 Biochemistry	Major	3	CHEM 475 Seminar in Chemistry	Major/OI	1	
	CHEM 406 Biochemistry Lab	Major	1	CHEM 407 Biochemistry II	Major Elect/PREF	3	
	CHEM 450 Advanced Inorganic Chemistry	Major	4	CHEM 408 Biochemistry II Lab	Major Elect/PREF/WI	1	
	BIOL 430 Molecular Biology	Major Elect/PREF	3	General Education Course	GE Goal 5-8	3	
	General Education Course	GE Goal 5-8	3	General Education Course	GE Goal 5-8	3	
	Physical Development & Wellness Course (if not taken earlier)	PDW	1-2	STAT 210 Statistics OR STAT 305 Biometry	PREF	3	
	NOTE: It is highly recommended that students TA for CHEM 190 during their sophomore, junior, or senior year				NOTE:		
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

Guide to 4 Year Major Maps

- 4 Year Major Maps are intended to show a recommended four-year pathway to a degree. Students must be full-time, college ready, and ready to declare a major to follow the map exactly as shown. Maps are only a sample; there may be other pathways that lead to completion of the degree in four years.
- Major Maps are NOT intended to take the place of meetings with advisors.
- Major Maps are NOT intended to take the place of the Degree Audit (DARs/uAchieve).

All courses listed on a major map will be labelled as one or more of the following:

GE Goal	General Education Goal Area	Indicates that the course meets one of the 10 General Education Goals
Gen Elec	General Elective	Indicates that the course does not meet a General Education, Major or Minor requirement but does count toward the degree
Major	Major Requirement	Indicates that the course meets a Major requirement
Major Elec	Major Elective	Indicates that the course counts toward the major as an elective, must be chosen from list of approved courses
Minor	Minor Requirement	Indicates that the course meets a Minor requirement
CAI	Critical Analysis Intensive	Indicates that the course counts as a Critical Analysis Intensive
OI	Oral Intensive	Indicates that the course counts as an Oral Intensive
WI	Written Intensive	Indicates that the course counts as a Written Intensive
PDW	Personal Development and Wellness	Indicates that the course counts as a Personal Development and Wellness Requirement

General Education Goal Areas:

		Minimum credits required
Goal 1	Communication	7 credits
Goal 2	Critical Thinking (Met with completion of all other goal areas)	--
Goal 3	Natural Science	7 credits
Goal 4	Mathematics	3-4 credits
Goal 5	History, Social/Behavioral Sciences	9 credits
Goal 6	Humanities and Fine Arts	9 credits
Goal 7	Human Diversity	3 credits
Goal 8	Global Perspective	3 credits
Goal 9	Ethic and Civic Responsibility	3 credits
Goal 10	People and the Environment	3 credits

Graduation Requirements:

- Minimum of 120 total credits (semester hours) required for Bachelors' Degree
- Minimum of 40 General Education credits required
- Minimum of 40 Upper Division credits required
- Minimum of 30 Residence credits required in Junior/Senior years
- Minimum WSU cumulative grade point average of 2.00; some programs require higher grade point averages

Major Maps are not contracts. Winona State University reserves the right to make changes at any time, without prior notice, to programs, policies, procedures, and information described in this major map. Students should consult the appropriate academic department or college for currently accurate program information.