



Winona State University  
**Four-Year Program Map**

Created on 4/25/2019  
 Effective Fall 2019

**Program:** Chemistry - ACS Environmental Chemistry (BS CHEC)  
**Emphasis (optional):**

Fall Semester				Spring Semester		
	Course	Requirement Met	SH	Course	Requirement Met	SH
<b>Year 1</b>	CHEM 212 Principles of Chemistry	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 and Writing	GE Goal 1	4	CMST 191, 192, or 266	GE Goal 1	3
	General Education	GE Goals 5-9	3	PHYS 221 University Physics	Major	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 the math courses required in the major.</i>			<i>NOTE:</i>		
<b>First-Year Fall Semester Credit Hour Total</b>			<b>16</b>	<b>First-Year Spring Semester Credit Hour Total</b>		<b>15</b>
<b>Year 2</b>	CHEM 360 Chemical Information	Major/OI	2	CHEM 340 Organic Chemistry Survey	Major	4
	PHYS 222 University Physics	Major	4	General Education	GE Goals 5-9	3
	MATH 213 Calculus II or General Education	Major/GE Goals 5-9	3-4	BIOL 312 General Ecology	Major	3
	CHEM 320 Environmental Chemistry	Major/GE Goal 10	4	BIOL 313 General Ecology Laboratory	Major	1
	General Education	GE Goals 5-9	3	General Education	GE Goals 5-9	3
	<i>NOTE: GE Goals 5-9 and Physical Development &amp; Wellness can be taken in any semester. To remain under 120 credits, take courses that meet two goal areas within GOALS 5-9.</i>			<i>NOTE:</i>		
<b>Second-Year Fall Semester Credit Hour Total</b>			<b>16-17</b>	<b>Second-Year Spring Semester Credit Hour Total</b>		<b>14</b>
<b>Year 3</b>	CHEM 412 Physical Chemistry I	Major/CAI	3	CHEM 414 Physical Chemistry II	Major/CAI	3
	CHEM 413 Physical Chemistry I Laboratory	Major/WI	1	CHEM 415 Physical Chemistry II Laboratory	Major/WI	2
	CHEM 425 Analytical Chemistry I	Major	4	CHEM 436 Topics in Environ Chem* or General Education	Major/GE Goals 5-9	3
	CHEM/BIOL/GEOS Elective	Major Elective	3-4	CHEM 426 Analytical Chemistry II	Major/WI	4
	General Education	GE Goals 5-9	3	General Education	GE Goals 5-9	3
	Physical Development & Wellness	PDW	1			
<i>NOTE:</i>			<i>NOTE: CHEM 436 is offered Springs of odd-numbered years only.</i>			
<b>Third-Year Fall Semester Credit Hour Total</b>			<b>15-16</b>	<b>Third-Year Spring Semester Credit Hour Total</b>		<b>15</b>
<b>Year 4</b>	CHEM 405 Biochemistry	Major	3	CHEM/BIOL/GEOS Elective	Major Elective	3-4
	CHEM 406 Biochemistry I Laboratory	Major/WI	1	CHEM 436 Topics in Environ Chem* or General Education	Major/GE Goals 5-9	3
	CHEM 450 Advanced Inorganic Chemistry	Major	4	CHEM 475 Seminar in Chemistry	Major/OI	1
	CHEM/BIOL/GEOS Elective	Major Elective	3-4	General Education	GE Goals 5-9	3
	General Education	GE Goals 5-9	3	General Education	GE Goals 5-9	3
	Physical Development & Wellness	PDW	1			
<i>NOTE:</i>			<i>NOTE: CHEM 436 is offered Springs of odd-numbered years only.</i>			
<b>Fourth-Year Fall Semester Credit Hour Total</b>			<b>15-16</b>	<b>Fourth-Year Spring Semester Credit Hour Total</b>		<b>13-14</b>

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 fulltime, 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 System (DARs).

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.