



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

Created on 4/25/2019  
 Effective Fall 2019

**Program:** Chemistry - ACS Chemistry (BS CHEM)  
**Emphasis (optional):**

	Fall Semester			Spring Semester		
	Course	Requirement Met	SH	Course	Requirement Met	SH
<b>Year 1</b>	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 MATH 212 Calculus I (Major)	GE Goal 4	4	MATH 212 Calculus I or MATH 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 5-10	3	General Education	GE Goals 5-10	3
	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 major courses.</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>14</b>		
<b>Year 2</b>	CHEM 350 Principles of Organic Chemistry I	Major	4	CHEM 351 Principles of Organic Chemistry II	Major	5
	CHEM 360 Chemical Information	Major/OI	2	CHEM 460 Research Proposal	Major/WI	1
	PHYS 221 University Physics I	Major	4	PHYS 222 University Physics II	Major	4
	MATH 213 Calculus II or General Education	Major/GE Goals 5-10	3-4	General Education	GE Goals 5-10	3
	General Education	GE Goals 5-10	3	Physical Development & Wellness	PDW	1
	<i>NOTE: GE Goals 5-10 and Physical Development &amp; Wellness can be taken in any semester.</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 Lab	Major/WI	1	CHEM 415 Physical Chemistry II Lab	Major/WI	2
	CHEM 425 Analytical Chemistry I or 450*	Major	4	CHEM 426 Analytical Chemistry II or 451*	Major/WI	2-4
	CHEM 461 Chemistry Research	Major	1	CHEM 461 Chemistry Research	Major	1
	General Education	GE Goals 5-10	3	CHEM 400-Level Elective	Major Elective	2-3
	General Education	GE Goals 5-10	3	General Education	GE Goals 5-10	3
	<i>NOTE:</i>			<i>NOTE: CHEM 451 is offered Springs of even-numbered years only. Students must earn 8 credits of CHEM 400-level major electives.</i>		
<b>Third-Year Fall Semester Credit Hour Total</b>			<b>15</b>	<b>Third-Year Spring Semester Credit Hour Total</b>		
				<b>13-16</b>		
<b>Year 4</b>	CHEM 405 Biochemistry I	Major	3	CHEM 451 Advanced Inorganic Chemistry* or 426	Major	2-4
	CHEM 406 Biochemistry I Lab	Major/WI	1	CHEM 475 Seminar in Chemistry	Major	1
	CHEM 450 Advanced Inorganic Chemistry or 425	Major	4	CHEM 400-Level Elective	Major Elective	2-3
	CHEM 461 Chemistry Research	Major	1	General Education	GE Goals 5-10	3
	CHEM 400-Level Elective	Major Elective	2-3	General Education	GE Goals 5-10	3
	General Education	GE Goals 5-10	3	Physical Development & Wellness	PDW	1
	<i>NOTE:</i>			<i>NOTE:</i>		
<b>Fourth-Year Fall Semester Credit Hour Total</b>			<b>14-15</b>	<b>Fourth-Year Spring Semester Credit Hour Total</b>		
				<b>12-15</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.