

## Chemistry Secondary Education Typical Four-Year Sequence

Freshman Year			
Fall Term		Spring Term	
Course	Units	Course	Units
SEMS110 Introduction to STEM Teaching I: Inquiry Approaches to Teaching	1	SEMS 120 Introduction to STEM Teaching II: Inquiry-Based Lesson Design	1
CHEM 131 General Chemistry I and CHEM 131L General Chemistry I Laboratory <b>(Core Category 7)</b>	3 1	CHEM 132 General Chemistry II and CHEM 132L General Chemistry II Laboratory	3 1
GEOL 121 Physical Geology or ASTR 161 Astronomy <b>(Core Category 8)</b>	4	BIOL190 Introductory Biology for the Health Professions or BIOL 201 Biology I: Cellular Biology and Genetics	4
MATH 211 Calculus for Application or MATH 273 Calculus I <b>(Core Category 3)</b>	3 – 4	ENGL 102 <b>(Core Category 2)</b>	3
TSEM 102 <b>(Core Category 1)</b>	3	Core Curriculum	3
<b>Total</b>	<b>15 – 16</b>	<b>Total</b>	<b>15</b>

Sophomore Year			
Fall Term		Spring Term	
Course	Units	Course	Units
SEMS 230 Knowing and Learning	3	SEMS 240 Classroom Interactions	3
CHEM 210 Introduction to Analytical Chemistry	5	CHEM 332 Organic Chemistry II	5
PHYS 211 General Physics I Non Calculus-Based or PHYS241 General Physics I Calculus-Based	4	PHYS 212 General Physics II Non Calculus-Based or PHYS242 General Physics II Calculus-Based	4
CHEM 331 Organic Chemistry I	5	Core Curriculum	3
		Core Curriculum	3
<b>Total</b>	<b>17</b>	<b>Total</b>	<b>18</b>

Junior Year			
Fall Term		Spring Term	
Course	Units	Course	Units
SEMS 250 Perspectives on Science and Math <b>(Core Category 5)</b>	3	SEMS 370 Project-Based Instruction	3
CHEM 323 Inorganic Chemistry or CHEM 351 Biochemistry	3 – 4	CHEM 372 Intermediate Laboratory I	2
SCED 460 Using Reading & Writing in the Secondary Schools	4	Chemistry Elective(s)	4
Core Curriculum	3	SCED 461 Teaching Reading in the Secondary Content Areas	3
Core Curriculum	3	Core Curriculum	3
<b>Total</b>	<b>16 – 17</b>	<b>Total</b>	<b>15</b>

Senior Year			
Fall Term		Spring Term	
Course	Units	Course	Units
SEMS 360 Research Methods <b>(Core Category 9)</b>	3	SCIE 393 Student Teaching in Secondary Education – Science	12
CHEM 401 Chemistry Seminar	1		
CHEM 345 Principles of Chemistry	3		
SCIE 380 Teaching Science in the Secondary School	3		
SEMS 498 Internship in Mathematics and Science Secondary Education	3	SCIE 430 Seminar in Student Teaching – Science	1
Core Curriculum	3		
<b>Total</b>	<b>16</b>	<b>Total</b>	<b>13</b>

The total number of units required for graduation is 125-127.