

MAJOR IN NATURAL SCIENCES, CHEMISTRY EDUCATION CONCENTRATION

Requirements Effective Fall 2024

Freshman

		AUCC	Credits
CHEM 120	Foundations of Modern Chemistry (GT-SC2)	3A	4
CHEM 121	Foundations of Modern Chemistry Laboratory (GT-SC1)	3A	1
CHEM 241	Foundations of Organic Chemistry		4
CHEM 242	Foundations of Organic Chemistry Laboratory		1
CO 150	College Composition (GT-CO2)	1A	3
EDUC 275	Schools, Society, and Self (GT-SS3)	3C	3
LIFE 102	Attributes of Living Systems (GT-SC1)	3A	4
Select one from the following:			4
MATH 155	Calculus for Biological Scientists I (GT-MA1)	1B	
MATH 160	Calculus for Physical Scientists I (GT-MA1)	1B	
1C (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#aucc)			3
Arts and Humanities (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities)			3
Total Credits			30

Sophomore

CHEM 231	Foundations of Analytical Chemistry		3
CHEM 232	Foundations of Analytical Chemistry Lab		2
CHEM 263	Foundations of Inorganic Chemistry		4
CHEM 264	Foundations of Inorganic Chemistry Laboratory		1
EDUC 340	Literacy and the Learner		3
EDUC 350	Instruction I-Individualization/Management		3
EDUC 386	Practicum-Instruction I		1
Select one of the following:			4
MATH 161	Calculus for Physical Scientists II (GT-MA1)	1B	
MATH 271	Applied Mathematics for Chemists I		
Select one of the following:			5
PH 121	General Physics I (GT-SC1)	3A	
PH 141	Physics for Scientists and Engineers I (GT-SC1)	3A	
Arts and Humanities (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities)			3
Science/Math Elective ¹			3
Total Credits			32

Junior

CHEM 321	Foundations of Chemical Biology		4
CHEM 322	Foundations of Chemical Biology Laboratory		1
CHEM 371	Fundamentals of Physical Chemistry		4
CHEM 372	Fundamentals of Physical Chemistry Lab		1
EDUC 461A	Secondary Science and Technology Education I		3

EDUC 461B	Secondary Science and Technology Education II		3
LIFE 103	Biology of Organisms-Animals and Plants (GT-SC1)	3A	4
Select one of the following:			5
PH 122	General Physics II (GT-SC1)	3A	
PH 142	Physics for Scientists and Engineers II (GT-SC1)	3A	
Advanced Writing (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#advanced-writing)		2	3
Historical Perspectives (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives)		3D	3
Total Credits			31
Senior			
EDUC 450	Instruction II-Standards and Assessment		4
EDUC 486E	Practicum: Instruction II		1
EDUC 485B	Student Teaching: Secondary	4A,4B,4C	11
EDUC 493A	Seminar: Professional Relations	4C	1
STAT 301	Introduction to Applied Statistical Methods		3
Select one group from the following:			4
Group A:			
AA 100	Introduction to Astronomy (GT-SC2)	3A	
AA 101	Astronomy Laboratory (GT-SC1)	3A	
Group B:			
GEOL 120	Geology and Society (GT-SC2)	3A	
GEOL 121	Experiential Geoscience Laboratory (GT-SC1)	3A	
Science/Math Elective ¹			3
Total Credits			27
Program Total Credits:			120

¹ Select course(s) in consultation with advisor.

Chemistry Education majors are expected to be prepared to take CHEM 120/CHEM 121 their first semester which requires MATH 118. All course work must be completed prior to Student Teaching (AUCC 4A/B/C requirement). Admission into the teacher licensure program is required for phase II education courses and above.

Major Completion Map

Distinctive Requirements for Degree Program:

All Chemistry Education majors must maintain a 2.75 GPA and receive a C or better in all content and education courses for licensure. All

Freshman

Semester 1		Critical	Recommended	AUCC	Credits
CHEM 120	Foundations of Modern Chemistry (GT-SC2)	X		3A	4
CHEM 121	Foundations of Modern Chemistry Laboratory (GT-SC1)	X		3A	1
CO 150	College Composition (GT-CO2)	X		1A	3
LIFE 102	Attributes of Living Systems (GT-SC1)	X		3A	4
Select one course from the following:		X			4
MATH 155	Calculus for Biological Scientists I (GT-MA1)			1B	
MATH 160	Calculus for Physical Scientists I (GT-MA1)			1B	
MATH 117, MATH 118 may be necessary for some students to fulfill pre-requisite requirements.		X			
Total Credits					16
Semester 2		Critical	Recommended	AUCC	Credits
CHEM 241	Foundations of Organic Chemistry	X			4
CHEM 242	Foundations of Organic Chemistry Laboratory	X			1
EDUC 275	Schools, Society, and Self (GT-SS3)	X		3C	3

1C (<https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#aucc>) X 1C 3

Arts and Humanities (<https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities>) X 3B 3

MATH 124, MATH 125, MATH 126 may be necessary for some students to fulfill pre-calculus requirements. X

Total Credits 14

Sophomore

Semester 3		Critical	Recommended	AUCC	Credits
CHEM 231	Foundations of Analytical Chemistry	X			3
CHEM 232	Foundations of Analytical Chemistry Lab	X			2
EDUC 340	Literacy and the Learner	X			3
Select one course from the following:		X			4
MATH 161	Calculus for Physical Scientists II (GT-MA1)			1B	
MATH 271	Applied Mathematics for Chemists I				
Science/Math Elective ¹		X			3
CHEM 120, CHEM 121 & MATH 155 or MATH 160 must be completed by the end of Semester 3.		X			

Total Credits 15

Semester 4		Critical	Recommended	AUCC	Credits
CHEM 263	Foundations of Inorganic Chemistry	X			4
CHEM 264	Foundations of Inorganic Chemistry Laboratory	X			1
EDUC 350	Instruction I-Individualization/Management	X			3
EDUC 386	Practicum-Instruction I	X			1
Select one course from the following:		X			5
PH 121	General Physics I (GT-SC1)			3A	
PH 141	Physics for Scientists and Engineers I (GT-SC1)			3A	
Arts and Humanities (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities)			X		3
CO 150 & MATH 161 or MATH 271 and Physics I must be completed by the end of Semester 4.		X			

Total Credits 17

Junior

Semester 5		Critical	Recommended	AUCC	Credits
CHEM 371	Fundamentals of Physical Chemistry	X			4
CHEM 372	Fundamentals of Physical Chemistry Lab	X			1
EDUC 461A	Secondary Science and Technology Education I	X			3
Select one of the following courses:		X			5
PH 122	General Physics II (GT-SC1)			3A	
PH 142	Physics for Scientists and Engineers II (GT-SC1)			3A	
Advanced Writing (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#advanced-writing)			X	2	3
Physics II must be completed by the end of Semester 5.		X			

Total Credits 16

Semester 6		Critical	Recommended	AUCC	Credits
CHEM 321	Foundations of Chemical Biology	X			4
CHEM 322	Foundations of Chemical Biology Laboratory	X			1
EDUC 461B	Secondary Science and Technology Education II	X			3
LIFE 103	Biology of Organisms-Animals and Plants (GT-SC1)	X		3A	4
Historical Perspectives (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives)			X	3D	3
LIFE 102 must be completed by the end of Semester 6.		X			

Total Credits 15

Senior

Semester 7		Critical	Recommended	AUCC	Credits
EDUC 450	Instruction II-Standards and Assessment	X			4
EDUC 486E	Practicum: Instruction II	X			1
STAT 301	Introduction to Applied Statistical Methods	X			3
Select one group from the following:		X			
Group A:					4
AA 100	Introduction to Astronomy (GT-SC2)			3A	
AA 101	Astronomy Laboratory (GT-SC1)			3A	
Group B:					
GEOL 120	Geology and Society (GT-SC2)			3A	
GEOL 121	Experiential Geoscience Laboratory (GT-SC1)			3A	
Science/Math Electives ¹		X			3
Total Credits					15
Semester 8		Critical	Recommended	AUCC	Credits
EDUC 485B	Student Teaching: Secondary	X		4A,4B,4C	11
EDUC 493A	Seminar: Professional Relations	X		4C	1
The benchmark courses for the 8th semester are the remaining courses in the entire program of study.		X			
Total Credits					12
Program Total Credits:					120