

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	Schooling in the United States (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 (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#aucc)			3
Arts and Humanities (http://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 (http://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 (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#advanced-writing)			3
Historical Perspectives (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives)			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:					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	Schooling in the United States (GT-SS3)	X		3C	3

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

Arts and Humanities (<http://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 Elective¹ 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 (<http://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 (<http://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 (<http://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