

MAJOR IN CHEMISTRY, SUSTAINABLE CHEMISTRY CONCENTRATION

Major Completion Map

Distinctive Requirements for Degree Program:

TO PREPARE FOR FIRST SEMESTER: The curriculum for the new American Chemical Society Certified Chemistry major assumes students

enter college prepared to take calculus. Entering students who are not prepared to take calculus will need to fulfill pre-calculus requirements in the first semester. CHEM 111 and CHEM 120 require Algebra II as a prerequisite (this prerequisite is met by having Algebra II by test credit, transfer credit, or placement out of MATH 117 and MATH 118 on Math Placement Exam). Earned grades of C (2.000) or better are required in all listed courses for the major in chemistry. Students with credit for CHEM 111, CHEM 112, CHEM 113, CHEM 114 do not need to take CHEM 120, CHEM 121. Students with credit for CHEM 341, CHEM 343, CHEM 344 do not need to take CHEM 241, CHEM 242.

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
CHEM 192	Introductory Seminar in Chemistry	X			2
CO 150	College Composition (GT-CO2)	X		1A	3
Select one course from the following:		X			3
AREC 202	Agricultural and Resource Economics (GT-SS1)			3C	
ECON 202	Principles of Microeconomics (GT-SS1)			3C	
Diversity, Equity, and Inclusion (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#diversity-equity-inclusion)		X		1C	3
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
CHEM 263	Foundations of Inorganic Chemistry	X			4
CHEM 264	Foundations of Inorganic Chemistry Laboratory	X			1
MATH 155 or 160	Calculus for Biological Scientists I (GT-MA1) Calculus for Physical Scientists I (GT-MA1)	X		1B	4
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
GES 101	Foundations of Environmental Sustainability				3
PH 121 or 141	General Physics I (GT-SC1) Physics for Scientists and Engineers I (GT-SC1)	X		3A	5
Select one course from the following:		X			4
Group A:					
MATH 271	Applied Mathematics for Chemists I				
Group B:					
MATH 161	Calculus for Physical Scientists II (GT-MA1)			1B	
Total Credits					17

Semester 4		Critical	Recommended	AUCC	Credits
CHEM 321 or BC 351	Foundations of Chemical Biology Principles of Biochemistry				4
CHEM 322	Foundations of Chemical Biology Laboratory				1
PH 122 or 142	General Physics II (GT-SC1) Physics for Scientists and Engineers II (GT-SC1)	X		3A	5
Select one course from the following:		X			4
Group A:					
MATH 272	Applied Mathematics for Chemists II				

Group B:

MATH 261	Calculus for Physical Scientists III				
Total Credits					14
Junior					
Semester 5					
		Critical	Recommended	AUCC	Credits
CHEM 371	Fundamentals of Physical Chemistry	X			4
CHEM 372	Fundamentals of Physical Chemistry Lab	X		4A	1
Select one course from the following:		X			3
ANTH 200	Cultures and the Global System (GT-SS3)			1C	
HORT 171/ SOCR 171	Environmental Issues in Agriculture (GT-SS3)			1C	
SOC 220	Environment, Food, and Social Justice (GT-SS3)			1C	
In-depth Chemistry Courses (see list on Program Requirements tab)		X			5
Advanced Writing (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#advanced-writing)				2	3
Total Credits					16
Semester 6					
		Critical	Recommended	AUCC	Credits
CHEM 338	Environmental Chemistry	X			3
Advanced Electives (see list on Program Requirements tab)		X			6
Arts and Humanities (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities)				3B	3
Historical Perspectives (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives)			X	3D	3
Total Credits					15
Senior					
Semester 7					
		Critical	Recommended	AUCC	Credits
Select six credits from the following courses:		X			6
CHEM 555	Chemistry of Sustainability				
ERHS 410	Environmental Health-Air and Waste Management				
GES 465/ MSE 465	Sustainable Strategies for E-Waste Management				
GES 542	Biobased Fuels, Energy, and Chemicals				
Arts and Humanities (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-and-humanities)			X	3B	3
Advanced Electives (See list on Program Requirements tab.)		X			3
Elective			X		3
Total Credits					15
Semester 8					
		Critical	Recommended	AUCC	Credits
CHEM 431	Instrumental Analysis				4
Select one course from the following:		X			2
CHEM 493	Senior Seminar			4C	
CHEM 499	Senior Thesis			4C	
Electives		X			7
The benchmark courses for the 8th semester are the remaining courses in the entire program of study.		X			
Total Credits					13
Program Total Credits:					120