MAJOR IN CHEMISTRY, ENVIRONMENTAL 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
Arts and Humanities (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-and-humanities)			X	3B	3
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
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				**14**

Semester 4		**Critical**	**Recommended**	**AUCC**	**Credits**
CHEM 321 or BC 351	Foundations of Chemical Biology Principles of Biochemistry	X			4
CHEM 322	Foundations of Chemical Biology Laboratory	X			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
GES 141	Introduction to Sustainable Energy		X		3
STAT 301 or 307	Introduction to Applied Statistical Methods Introduction to Biostatistics	X			3
Advanced Writing (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#advanced-writing)				2	3
Social and Behavioral Sciences (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#social-behavioral-sciences)			X	3C	3
	Total Credits				**17**
Semester 6		**Critical**	**Recommended**	**AUCC**	**Credits**
CHEM 338	Environmental Chemistry	X			3
Arts and Humanities (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-and-humanities)				3B	3
Historical Perspectives (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives)			X	3D	3
Electives			X		6
	Total Credits				**15**
Senior					
Semester 7		**Critical**	**Recommended**	**AUCC**	**Credits**
Select three credits from the following courses:		X			3
ERHS 320	Environmental Health--Water Quality				
ERHS 446	Environmental Toxicology				
ERHS 448	Environmental Contaminants				
GES 465/ MSE 465	Sustainable Strategies for E-Waste Management				
GES 542	Biobased Fuels, Energy, and Chemicals				
SOCR 467	Soil and Environmental Chemistry				
Advanced Electives (See list on Program Requirements tab)		X			5
Elective			X		3
In-depth Chemistry Courses (see list on Program Requirements tab)		X			5
	Total Credits				**16**
Semester 8		**Critical**	**Recommended**	**AUCC**	**Credits**
CHEM 431	Instrumental Analysis	X		4B	4
Select one course from the following:		X			2
CHEM 493	Senior Seminar			4C	
CHEM 499	Senior Thesis			4C	
Advanced Electives (See list on Program Requirements tab)		X			4
Electives		X			4
The benchmark courses for the 8th semester are the remaining courses in the entire program of study.		X			
	Total Credits				**14**
	Program Total Credits:				**120**