MAJOR IN CHEMISTRY, HEALTH SCIENCES 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
LIFE 102	Attributes of Living Systems (GT-SC1)	X		3A	4
Diversity, Equity, and Inclusion (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#diversity-equity-inclusion)		X		1C	3
	Total Credits				**17**

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
Select one course from the following:		X			3-4
LIFE 103	Biology of Organisms-Animals and Plants (GT-SC1)			3A	
LIFE 201B	Introductory Genetics: Molecular/Immunological/Developmental (GT-SC2)			3A	
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				**17-18**

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
CHEM 440	Advanced Organic Chemistry Laboratory	X		4B	2
CHEM 445	Synthetic Organic Chemistry	X		4B	3
Advanced Writing (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#advanced-writing)				2	3
	Total Credits				**13**
Semester 6		**Critical**	**Recommended**	**AUCC**	**Credits**
CHEM 320	Chemistry of Addictions	X			3
PSY 100 or ECON 202	General Psychology (GT-SS3) Principles of Microeconomics (GT-SS1)	X		3C,3C	3
Select one course from the following:		X			3-4
BZ 350	Molecular and General Genetics				
LIFE 201B	Introductory Genetics: Molecular/Immunological/ Developmental (GT-SC2)			3A	
Arts and Humanities (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-and-humanities)			X	3B	3
Historical Perspectives (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives)			X	3D	3
	Total Credits				**15-16**
Senior					
Semester 7		**Critical**	**Recommended**	**AUCC**	**Credits**
BMS 300	Principles of Human Physiology				4
MIP 300	General Microbiology	X			3
MIP 302 or BMS 302	General Microbiology Laboratory Laboratory in Principles of Physiology	X			2
In-depth Chemistry Course (see list on Program Requirements tab)		X			3-4
Arts and Humanities (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-and-humanities)			X	3B	3
	Total Credits				**15**
Semester 8		**Critical**	**Recommended**	**AUCC**	**Credits**
CHEM 433 or 448	Clinical Chemistry Medicinal Chemistry	X			3
SPCM 200	Public Speaking	X			3
Select one course from the following:		X			4-5
BMS 305	Domestic Animal Gross Anatomy				
BMS 301	Human Gross Anatomy				
Select one course from the following:		X			2
CHEM 493	Senior Seminar			4C	
CHEM 499	Senior Thesis			4C	
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**