MAJOR IN CHEMISTRY, HEALTH SCIENCES CONCENTRATION

Requirements
Effective Spring 2024

Chemistry majors must achieve a minimum grade of C (2.000) in all the listed courses required for the major in chemistry.

Freshman

		AUCC	Credits
CHEM 120[1]	Foundations of Modern Chemistry (GT-SC2)	3A	4
CHEM 121[1]	Foundations of Modern Chemistry Laboratory (GT-SC1)	3A	1
CHEM 192	Introductory Seminar in Chemistry		2
CHEM 241[2]	Foundations of Organic Chemistry		4
CHEM 242[2]	Foundations of Organic Chemistry Laboratory		1
CHEM 263	Foundations of Inorganic Chemistry		4
CHEM 264	Foundations of Inorganic Chemistry Laboratory		1
CO 150	College Composition (GT-CO2)	1A	3
LIFE 102	Attributes of Living Systems (GT-SC1)	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	
Diversity, Equity, and Inclusion (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#diversity-equity-inclusion)		1C	3
	Total Credits		**31**

Sophomore

CHEM 231	Foundations of Analytical Chemistry		3
CHEM 232	Foundations of Analytical Chemistry Lab		2
CHEM 322	Foundations of Chemical Biology Laboratory		1
Select one course from the following:			4
BC 351	Principles of Biochemistry		
CHEM 321	Foundations of Chemical Biology		
Select one course from the following:			3-4
LIFE 103	Biology of Organisms-Animals and Plants (GT-SC1)	3A	
LIFE 201B	Introductory Genetics: Molecular/Immunological/Developmental (GT-SC2)	3A	
Select one course from the following:			5
PH 121	General Physics I (GT-SC1)	3A	
PH 141	Physics for Scientists and Engineers I (GT-SC1)	3A	
Select one course from the following:			5
PH 122	General Physics II (GT-SC1)	3A	
PH 142	Physics for Scientists and Engineers II (GT-SC1)	3A	
Select one group from the following:			8
Group A			
MATH 271	Applied Mathematics for Chemists I		
MATH 272	Applied Mathematics for Chemists II		
Group B			
MATH 161	Calculus for Physical Scientists II (GT-MA1)	1B	

MATH 261	Calculus for Physical Scientists III		
	Total Credits		**31-32**
Junior			
CHEM 320	Chemistry of Addictions		3
CHEM 371	Fundamentals of Physical Chemistry		4
CHEM 372	Fundamentals of Physical Chemistry Lab	4A	1
CHEM 440	Advanced Organic Chemistry Laboratory	4B	2
CHEM 445	Synthetic Organic Chemistry	4B	3
Select one course from the following:			3-4
BZ 350	Molecular and General Genetics		
LIFE 201B	Introductory Genetics: Molecular/Immunological/Developmental (GT-SC2)	3A	
Select one course from the following:			3
ECON 202	Principles of Microeconomics (GT-SS1)	3C	
PSY 100	General Psychology (GT-SS3)	3C	
Advanced Writing (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#advanced-writing)[3]		2	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)		3D	3
	Total Credits		**28-29**
Senior			
BMS 300	Principles of Human Physiology		4
MIP 300	General Microbiology		3
SPCM 200	Public Speaking		3
Select one course from the following:			4-5
BMS 301	Human Gross Anatomy		
BMS 305	Domestic Animal Gross Anatomy		
Select one course from the following:			3
CHEM 433	Clinical Chemistry		
CHEM 448	Medicinal Chemistry		
Select one course from the following:			2
BMS 302	Laboratory in Principles of Physiology		
MIP 302	General Microbiology Laboratory		
Select one course from the following:			2
CHEM 493	Senior Seminar	4C	
CHEM 499[4]	Senior Thesis	4C	
In-depth Chemistry Course (see list below)			3-4
Arts and Humanities (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-and-humanities)		3B	3
	Total Credits		**28**
	Program Total Credits:		**120**

In-depth Chemistry Courses

At least 3 credits must come from laboratory course or lab components of lecture/laboratory courses: CHEM 431, CHEM 433, CHEM 440, CHEM 462, CHEM 477, or CHEM 498.

Code	Title	AUCC	Credits
CHEM 311	Introduction to Nanoscale Science		3
CHEM 315	Foundations of Polymer Chemistry		3
CHEM 333	Forensic Chemistry		3

CHEM 338	Environmental Chemistry		3
CHEM 431	Instrumental Analysis	4B	4
CHEM 433	Clinical Chemistry		3
CHEM 448	Medicinal Chemistry		3
CHEM 461	Inorganic Chemistry	4B	3
CHEM 462	Inorganic Chemistry Laboratory	4B	2
CHEM 476	Physical Chemistry II	4B	3
CHEM 477	Advanced Physical Chemistry Laboratory	4B	1
CHEM 498	Research		1-3

[1] Students who complete General Chemistry in Freshman year (CHEM 111 or CHEM 107, CHEM 112 or CHEM 108, CHEM 113, CHEM 114) do not have to take CHEM 120 and CHEM 121.

[2] Students may complete the organic chemistry requirement by taking CHEM 341, CHEM 343, and CHEM 344. Students who take CHEM 245/CHEM 246 may complete the organic chemistry requirement by taking CHEM 343/CHEM 344. For both sets of these students, CHEM 343/CHEM 344 together count as an in-depth chemistry course.

[3] CHEM 301 is recommended.

[4] CHEM 499 by department approval. Students fulfilling the AUCC 4C requirement with CHEM 499 must write a thesis and present it to the department.