



MATERIALS CHEMISTRY CONCENTRATION CHEM-XCHZ-BS

Graduation Requirements: 120 total credits

Overall GPA 2.00 or better; AUCC GPA 2.00 or better; C or better in major courses; 42 upper-division credits (30 at CSU); last 15 credits must be taken at CSU.

Major Requirements/Other Requirements

six foundational courses (30 credits); in-depth chemistry courses (12 credits, 5 credits must have lab); advanced electives (17 credits); 400 lab hours (beyond CHEM121 or CHEM114); foundational science courses (e.g. math, physics, etc.); electives

All University Core-Curriculum Credit Requirement:

intermediate (AUCC1A, 3 credits) and advanced composition (AUCC2, 3 credits); mathematics (AUCC1B, 3 credits); diversity, equity, inclusion (AUCC1C, 3 credits); arts and humanities (AUCC3B, 6 credits); social and behavioral sciences (AUCC3C, 3 credits); historical perspectives (AUCC3D, 3 credits)

Student Success Markers (to be completed within the first 30 credits):

CHEM 192; CO 150; 3 credits of math; 3 credits of diversity, equity, and inclusion (AUCC1C)

FIRST YEAR			Total Year Credits:	28		
Term Credit Hours	14			Term Credit Hours	14	
Fall			Spring			
Course Code	Course No.	Credit Hours		Course Code	Course No.	Credit Hours
CHEM111	General Chemistry I	4		CHEM113	General Chemistry II	3
CHEM112	General Chemistry Lab	1		CHEM114	General Chemistry II Lab	1
AUCC3B	Arts and Humanities	3		MATH155 or 160	Calculus I	4
AUCC1C	Diversity, Equity, Inclusion	3		AUCC3B	Arts & Humanities	3
CO150	College Composition	3		AUCC3D	History	3
MATH 117-118-124-125-126 or 127 (if needed)						

SECOND YEAR			Total Year Credits:	28		
Term Credit Hours	14			Term Credit Hours	14	
Fall			Spring			
Course Code	Course No.	Credit Hours		Course Code	Course No.	Credit Hours
CHEM341	Organic Chem	3		CHEM343	Organic Chemistry II	3
CHEM192	Introductory Seminar	2		CHEM344	Organic Chemistry Lab	2
MATH271 or 161	Applied Math / Calculus 2	4		MATH272 or 261	Applied Math / Calculus 3	4
PH141 or 121	Physics 1	5		PH142 or 122	Physics 2	5

THIRD YEAR			Total Year Credits:	32		
Term Credit Hours	16			Term Credit Hours	16	
Fall			Spring			
Course Code	Course No.	Credit Hours		Course Code	Course No.	Credit Hours
CHEM301 or CO300 or JTC300	Advanced Writing	3		CHEM315	Polymer Chemistry	3
CHEM371	Physical Chemistry	4		CHEM263	Inorganic Chemistry	4
CHEM372	Physical Chemistry Lab	1		CHEM264	Inorganic Chemistry Lab	1
CHEM231	Analytical Chem	3		CHEM321 or BC351	Chemical Biology	4
CHEM232	Analytical Chem Lab	2		CHEM322	Chemical biology Lab	1
AUCC3C	Social Science	3		ELECTIVE	any level	3

FOURTH YEAR			Total Year Credits:	32		
Term Credit Hours	16			Term Credit Hours	16	
Fall			Spring			
Course Code	Course No.	Credit Hours		Course Code	Course No.	Credit Hours
Select three credits from the following:						
CHEM476, 477, 511, GES465, ERHS410		3		CHEM493 or 499	Seminar or Thesis	2
Advanced Electives	300, 400, or 500-level	8		CHEM 461	Inorganic Chemistry	3
CHEM311	Intro to Nanoscale Science	3		CHEM 462	Inorganic Chemistry Lab	2
ELECTIVE	any level	2		ELECTIVE	any level	4
				Advanced Electives	300, 400, or 500-level	5

TOTAL DEGREE CREDITS: 120

All University Core Curriculum Courses (AUCC)

For a complete list of courses, visit the university catalog at <https://catalog.colostate.edu>. Honors students may have other requirements in these categories; talk to your Honors Advisor.

*Foundational Courses Requirement Options (Choose One)

Foundational Courses: GENERAL / ANALYTICAL

GROUP A GROUP B
CHEM 120/121 CHEM 111/112
CHEM 231/232 CHEM 113/114
 CHEM 231/232

Foundational Courses: ORGANIC

GROUP A GROUP B GROUP C
CHEM 241/242 CHEM 245/246 CHEM 341
 CHEM 343/344 CHEM 343/344

**Advanced Electives

CHEM 384-Supervised College Teaching

CHEM 487-Internship

CHEM 495-Independent Study

CHEM 498-Research

Any other course from the in-depth chemistry courses list.

Any course at the 300-, 400-, or 500-level.

(If the student is pursuing a pre-health profession, please refer to <https://hp.colostate.edu> for more information on prerequisites or declare concentration in Health Sciences. Courses may satisfy the advanced electives requirements.)

Revised: 8/31/2023 CJO

***In-depth Chemistry Courses (12 credits minimum)

At least 3 credits from lab* courses and at least 5 credits from AUCC4B.

Any of these courses may also be used to satisfy the advanced electives, except when required for a concentration.

Course	Credits
CHEM 311-Introduction to Nanoscale Science	3
CHEM 315-Foundations of Polymer Chemistry	3
CHEM 320-Chemistry of Additions	3
CHEM 333-Forensic Chemistry (AUCC4B)	3
CHEM 338-Environmental Chemistry (AUCC4B)	3
CHEM 355-Sustainable Chemistry	3
CHEM 431-Instrumental Analysis* (AUCC4B)	4
CHEM 433-Clinical Chemistry*	3
CHEM 440-Advanced Organic Chemistry Lab* (AUCC4B)	2
CHEM 421-Chemistry of Cannabis and Hemp	3
CHEM 445-Synthetic Organic Chemistry (AUCC4B)	3
CHEM 448-Medicinal Chemistry	3
CHEM 451-Catalysis	3
CHEM 461-Advanced Inorganic Chemistry (AUCC4B)	3
CHEM 462-Advanced Inorganic Chemistry Lab*	2
CHEM 465-Chemistry of Sustainable E-Waste Management	3
CHEM 476-Physical Chemistry II (AUCC4B)	3
CHEM 477-Physical Chemistry II Lab*	1
CHEM 498-Research*	1-3 per term
any CHEM 500+ course	

Name:				Advising Code:				
Progress to Degree	Earned:		/120	Registration	Date:	Time:		
GPA-CUM	In Progress:			Pre-Health	<u>PharmD</u>	MD	DMD	DVM
GPA-AUCC	Needs:			Double Major				
Standing	GS	PRB-1	PRB-2	Minors				