

CHEMISTRY, BS

Natural Sciences, Mathematics, and Engineering (nsme) (<https://catalog.csub.edu/general-information/csub-information/school-natural-sciences-mathematics-engineering/>)

Department of Chemistry and Biochemistry (<https://catalog.csub.edu/general-information/csub-information/school-natural-sciences-mathematics-engineering/department-chemistry-biochemistry/>)

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www.csub.edu/Chemistry (<http://www.csub.edu/Chemistry/>)

Program Maps for Natural Sciences, Mathematics, and Engineering (<https://programmmap.csub.edu/academics/interest-clusters/4e942a6e-b8e4-4b60-a1ae-334235acc581/>)

Program Requirements Academic Regulations

A grade of "C" in chemistry, cognate, and all other major/minor courses is the minimal grade acceptable for progression into subsequent chemistry courses and for graduation. Students who fail to achieve at least a "C" may repeat the course. If a course is satisfactorily completed, the prior unsatisfactory grade will no longer bar a student from continuing in the Chemistry program. Credit, no-credit courses are not acceptable for the major or minor.

Code	Title	Units
General Education Requirements		
	First-Year Seminar (FYS)	2
	Lower Division Area A: Foundational Skills	9
	Lower Division Area B: Natural Sciences ²	3
	Lower Division Area C: Arts and Humanities	6
	Lower Division Area D: Social and Behavioral Sciences	3
	Lower Division Area E: Student Enrichment and Lifelong Learning (SELF) ⁶	0
	Lower Division Area F: Ethnic Studies	3
	American Institutions: Government and History	6
	Junior Year Diversity & Reflection (JYDR)	3
	Graduation Writing Assessment Requirement (GWAR) ⁷	0
	Upper Division Thematic Area C and D	6
	General Education Capstone ²	0
	<i>General Education Subtotal</i>	47
Major Requirements¹		
<i>Lower Division²</i>		
CHEM 1000	Foundations of Chemistry	3
CHEM 1001	Foundations of Chemistry Laboratory	2
CHEM 1100	Foundations of Analytical Chemistry	2
CHEM 1600	Foundations of Physical Chemistry	2
CHEM 2110	Foundations of Quantitative Chemical Analysis	3
CHEM 2200	Foundations of Inorganic Chemistry	2

	or CHEM 2240 Foundations of Bioinorganic Chemistry	
CHEM 2300	Foundations of Organic Chemistry	3
CHEM 2400	Foundations of Biochemistry	2
CHEM 2900	Research Methods in Chemistry ³	2
<i>Upper Division²</i>		
CHEM 3110	Advanced Quantitative Chemical Analysis	3
CHEM 3300	Intermediate Organic Chemistry	3
CHEM 3301	Organic Chemistry Laboratory I	2
CHEM 3310	Advanced Organic Chemistry	2
CHEM 3311	Organic Chemistry Laboratory II	2
CHEM 3600	Physical Chemistry: Thermodynamics and Kinetics	3
CHEM 3610	Physical Chemistry: Quantum and Statistical Mechanics	3
CHEM 3908	Seminar in Chemical Literature	3
CHEM 4100	Chemical Separations	1
CHEM 4101	Chemical Separations Laboratory	1
CHEM 4110	Spectroscopy	1
CHEM 4200	Inorganic Chemistry	3
CHEM 4908	Senior Seminar in Chemistry	3
Select four additional units of the following: 4		
	CHEM 3400 Biochemistry of Metabolic Pathways	
	CHEM 3401 Biochemistry Laboratory I	
	CHEM 3500 Concepts of Food Analysis	
	CHEM 3510 Food Science	
	CHEM 4010 Symmetry and Group Theory	
	CHEM 4020 Computational Chemistry	
	CHEM 4120 Nuclear Magnetic Resonance	
	CHEM 4121 Spectroscopy Laboratory	
	CHEM 4400 Biochemistry of Nucleic Acids	
	CHEM 4401 Biochemistry Laboratory II	
	CHEM 4410 Protein Chemistry	
	CHEM 4420 Plant Biochemistry	
	CHEM 4500 Food Chemistry	
	CHEM 4510 Advanced Nutrition and Metabolism	
	CHEM 4700 Special Topics in Chemistry	
	CHEM 4800 Honors Research	
	CHEM 4830 Instruction in Chemistry	
<i>Cognates²</i>		
<i>Mathematics⁴</i>		
Select one of the following: 8		
	MATH 2010 Calculus for the Biological and Chemical Sciences & MATH 2020 I and Calculus for Biological & Chemical Sciences II	
	MATH 2310 Single Variable Calculus I for Engineers & MATH 2320 and Single Variable Calculus II for Engineers	
	MATH 2510 Single Variable Calculus I & MATH 2520 and Single Variable Calculus II	
<i>Physics⁵</i>		
Select one of the following: 8		
	PHYS 2110 College Physics I & PHYS 2120 and College Physics II	
	PHYS 2210 Physics for Scientists and Engineers I & PHYS 2220 and Physics for Scientists and Engineers II	

<i>Major Subtotal</i>	71
Additional Units Needed Towards Graduation	7-8
Total Units	119-120

¹ The minimum GPA for these 71-72 units is 2.0

² Satisfied in major or cognate

³ Satisfies Area B1

⁴ Satisfies Area B4

⁵ Satisfies Area B1/B3

⁶ The SELF requirement is met by completing a LD Area C, or D course with a SELF component.

⁷ Can be satisfied by exam.