CHEMISTRY, BS, CERTIFIED BY THE AMERICAN CHEMICAL SOCIETY

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://programmap.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
General Education Subtotal		*41*
Major Requirements [1]		
Lower Division [2]		
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
Upper Division [2]		
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 3400	Biochemistry of Metabolic Pathways	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 4120	Nuclear Magnetic Resonance	1
CHEM 4121	Spectroscopy Laboratory	1
CHEM 4200	Inorganic Chemistry	3
CHEM 4800	Honors Research	1-3
CHEM 4908	Senior Seminar in Chemistry	3
Select three additional units of the following:		3
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 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 4830	Instruction in Chemistry	
Cognates [2]		
Mathematics [4]		
Select one of the following:		8
MATH 2010 & MATH 2020	Calculus for the Biological and Chemical Sciences I and Calculus for Biological & Chemical Sciences II	
MATH 2310 & MATH 2320	Single Variable Calculus I for Engineers and Single Variable Calculus II for Engineers	
MATH 2510 & MATH 2520	Single Variable Calculus I and Single Variable Calculus II	
Physics [5]		
Select one of the following:		8

	PHYS 2110 & PHYS 2120	College Physics I and College Physics II
	PHYS 2210 & PHYS 2220	Physics for Scientists and Engineers I and Physics for Scientists and Engineers II
Major Subtotal		*75-77*
Additional Units Needed Towards Graduation		**1-2**
Total Units		**117-120**

[1] The minimum GPA for these 77-78 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 B, C, or D course with a S ELF component.
[7] Can be satisfied by exam.