

BIOCHEMISTRY, BS, CONCENTRATION IN FOOD SCIENCE

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

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	0
	Lower Division Area C: Arts and Humanities	6
	Lower Division Area D: Social and Behavioral Sciences	6
	Lower Division Area E: Student Enrichment and Lifelong Learning (SELF) ⁷	0
	American Institutions: Government and History	6
	Junior Year Diversity & Reflection (JYDR)	3
	Graduation Writing Assessment Requirement (GWAR) ⁸	0
	Upper Division Thematic Area C and D	6
	General Education Capstone ²	0
	<i>General Education Subtotal</i>	38
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 2300	Foundations of Organic Chemistry	3
CHEM 2400	Foundations of Biochemistry	2
CHEM 2940	Research Methods in Biochemistry ³	2
<i>Upper Division²</i>		
CHEM 3300	Intermediate Organic Chemistry	3
CHEM 3301	Organic Chemistry Laboratory I	2
CHEM 3400	Biochemistry of Metabolic Pathways	2

CHEM 3401	Biochemistry Laboratory I	2
CHEM 3600	Physical Chemistry: Thermodynamics and Kinetics	3
CHEM 3948	Seminar in Biochemical Literature	3
CHEM 4400	Biochemistry of Nucleic Acids	2
CHEM 4948	Senior Seminar in Biochemistry	3
<i>Cognates²</i>		
<i>Biology⁴</i>		
BIOL 2010	Introductory Biology - Cells	4
BIOL 2110	Introductory Biology - Animals	4
or BIOL 2120	Introductory Biology - Plants	
<i>Mathematics⁵</i>		
Select one of the following:		8
MATH 2010 & MATH 2020 I	Calculus for the Biological and Chemical Sciences 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	
<i>Physics⁶</i>		
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	
<i>Major Subtotal</i>		60
Additional Requirements for the B.S. in Biochemistry with a Concentration in Food Science		16-18
<i>Lower Division Requirements</i>		
CHEM 2200	Foundations of Inorganic Chemistry	2
or CHEM 2240	Foundations of Bioinorganic Chemistry	
<i>Upper Division Requirements</i>		
CHEM 3110	Advanced Quantitative Chemical Analysis	3
or CHEM 3500	Concepts of Food Analysis	
CHEM 3510	Food Science	1
CHEM 4500	Food Chemistry	3
CHEM 4510	Advanced Nutrition and Metabolism	2
CHEM 4850	Food Industrial Practicum	1-3
<i>Cognates</i>		
BIOL 2230	Microbiology	4
or BIOL 3410	General Microbiology	
or BIOL 3420	Food Microbiology	
Total Units		130-134

¹ The minimum GPA for these 76-78 units is 2.0

² Satisfied in major or cognate

³ Satisfies Area B1

⁴ Satisfies Area B2/B3

⁵ Satisfies Area B4

⁶ Satisfies Area B1/B3

⁷ The SELF requirement is met by completing a LD Area C, or D course with a SELF component.

⁸ Can be satisfied by exam.