## 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/)

Department Chair: Sarah Forester

Office: Science Building II, 273

Phone: (661) 654-2030

Email: chemistry@csub.edu

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	litle	Units
General Educati	ion Requirements	
First-Year Seminar (FYS)		
Lower Division	Area A: Foundational Skills	9
Lower Division	Area B: Natural Sciences <sup>2</sup>	0
Lower Division Area C: Arts and Humanities		
Lower Division Area D: Social and Behavioral Sciences		
Lower Division (SELF) 7	Area E: Student Enrichment and Lifelong Learning	0
American Instit	utions: Government and History	6
Junior Year Dive	ersity & Reflection (JYDR)	3
Graduation Writing Assessment Requirement (GWAR) <sup>8</sup>		
Upper Division Thematic Area C and D		
General Education Capstone <sup>2</sup>		
General Education	on Subtotal	38
Major Requirem	nents <sup>1</sup>	
Lower Division <sup>2</sup>		
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 <sup>3</sup>	2
Upper Division <sup>2</sup>		
CHEM 3300	Intermediate Organic Chemistry	3
CHEM 3301	Organic Chemistry Laboratory I	2
CHEM 3400	Biochemistry of Metabolic Pathways	2

CHEM 3948 Seminar in Biochemical Literature CHEM 4400 Biochemistry of Nucleic Acids CHEM 4948 Senior Seminar in Biochemistry Cognates 2 Biology 4 BIOL 2010 Introductory Biology - Cells BIOL 2110 Introductory Biology - Animals or BIOL 2120 Introductory Biology - Plants Mathematics 5 Select one of the following: MATH 2010 Calculus for the Biological and Chemical Sciences 8 MATH 2020 I and Calculus for Biological & Chemical Sciences II MATH 2310 Single Variable Calculus I for Engineers and Single Variable Calculus II for Engineers and Single Variable Calculus II 8 MATH 2510 Single Variable Calculus II 9 MATH 2510 and Single Variable Calculus II Physics 6 Select one of the following: PHYS 2110 College Physics I 8 PHYS 2120 Physics for Scientists and Engineers I 8 PHYS 2210 Physics for Scientists and Engineers II Major Subtotal Additional Requirements for the B.S. in Biochemistry with a Concentration in Food Science Lower Divison Requirements CHEM 2200 Foundations of Inorganic Chemistry or CHEM 2240 Foundations of Bioinorganic Chemistry Upper Division Requirements CHEM 3510 Food Science CHEM 3510 Food Science CHEM 4500 Food Chemistry CHEM 4850 Food Industrial Practicum CHEM 4850 Food Industrial Practicum CHEM 4850 Food Industrial Practicum 1- Cognates	Total Units	1	30-134
CHEM 3948 Seminar in Biochemical Literature CHEM 4400 Biochemistry of Nucleic Acids CHEM 4948 Senior Seminar in Biochemistry Cognates 2 Biology 4 BIOL 2010 Introductory Biology - Cells BIOL 2110 Introductory Biology - Animals or BIOL 2120 Introductory Biology - Plants Mathematics 5 Select one of the following:  MATH 2010 Calculus for the Biological and Chemical Sciences 8 MATH 2020 I and Calculus for Biological & Chemical Sciences II MATH 2310 Single Variable Calculus I for Engineers 8 MATH 2320 and Single Variable Calculus II for Engineers MATH 2510 Single Variable Calculus II 8 MATH 2520 and Single Variable Calculus II Physics 5 Select one of the following: PHYS 2110 College Physics I 8 PHYS 2120 and College Physics II PHYS 2210 Physics for Scientists and Engineers II 8 PHYS 2220 and Physics for Scientists and Engineers II 8 PHYS 2220 and Physics for Scientists and Engineers II 8 Additional Requirements for the B.S. in Biochemistry with a Concentration in Food Science Lower Divison Requirements CHEM 2200 Foundations of Inorganic Chemistry or CHEM 2240 Foundations of Bioinorganic Chemistry Upper Division Requirements CHEM 3510 Food Science CHEM 3510 Food Science CHEM 4500 Food Chemistry CHEM 4510 Advanced Nutrition and Metabolism CHEM 4850 Food Industrial Practicum 1- Cognates BIOL 2230 Microbiology	or BIOL 3420	Food Microbiology	
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CHEM 3948 Seminar in Biochemical Literature CHEM 4400 Biochemistry of Nucleic Acids CHEM 4948 Senior Seminar in Biochemistry Cognates <sup>2</sup> Biology <sup>4</sup> BIOL 2010 Introductory Biology - Cells BIOL 2110 Introductory Biology - Animals or BIOL 2120 Introductory Biology - Plants Mathematics <sup>5</sup> Select one of the following: MATH 2010 Calculus for the Biological and Chemical Sciences & MATH 2020 Introductory Biology - Plants  MATH 2310 Single Variable Calculus I for Engineers & MATH 2320 and Single Variable Calculus II for Engineers & MATH 2510 Single Variable Calculus II for Engineers  MATH 2510 Single Variable Calculus II & MATH 2520 and Single Variable Calculus II Physics <sup>6</sup> Select one of the following: PHYS 2110 College Physics I & PHYS 2120 and College Physics II PHYS 2210 Physics for Scientists and Engineers II Major Subtotal 6 Additional Requirements for the B.S. in Biochemistry with a Concentration in Food Science Lower Divison Requirements CHEM 2200 Foundations of Inorganic Chemistry Upper Division Requirements CHEM 3110 Advanced Quantitative Chemical Analysis or CHEM 3500 Concepts of Food Analysis CHEM 3510 Food Science	CHEM 4510	Advanced Nutrition and Metabolism	2
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CHEM 3948 Seminar in Biochemical Literature CHEM 4400 Biochemistry of Nucleic Acids CHEM 4948 Senior Seminar in Biochemistry  Cognates <sup>2</sup> Biology <sup>4</sup> BIOL 2010 Introductory Biology - Cells BIOL 2110 Introductory Biology - Animals	Mathematics <sup>5</sup>		
CHEM 3948 Seminar in Biochemical Literature CHEM 4400 Biochemistry of Nucleic Acids CHEM 4948 Senior Seminar in Biochemistry  Cognates 2 Biology 4 BIOL 2010 Introductory Biology - Cells	or BIOL 2120	Introductory Biology - Plants	
CHEM 3948 Seminar in Biochemical Literature CHEM 4400 Biochemistry of Nucleic Acids CHEM 4948 Senior Seminar in Biochemistry  Cognates 2 Biology 4	BIOL 2110	Introductory Biology - Animals	4
CHEM 3948 Seminar in Biochemical Literature CHEM 4400 Biochemistry of Nucleic Acids CHEM 4948 Senior Seminar in Biochemistry Cognates 2	BIOL 2010	Introductory Biology - Cells	4
CHEM 3948 Seminar in Biochemical Literature CHEM 4400 Biochemistry of Nucleic Acids CHEM 4948 Senior Seminar in Biochemistry			
CHEM 3948 Seminar in Biochemical Literature CHEM 4400 Biochemistry of Nucleic Acids	Cognates <sup>2</sup>	,	
CHEM 3948 Seminar in Biochemical Literature			3
			2
			3
CHEM 3401 Biochemistry Laboratory I	CUEM 2401	Piochamietry Laboratory I	2

- 1 The minimum GPA for these 76-78 units is 2.0
- <sup>2</sup> Satisfied in major or cognate
- 3 Satisfies Area B1

Unite

- <sup>4</sup> Satisfies Area B2/B3
- <sup>5</sup> Satisfies Area B4
- Satisfies Area B1/B3
- The SELF requirement is met by completing a LD Area C, or D course with a SELF component.
- <sup>8</sup> Can be satisfied by exam.