

Degree: Biochemistry, B.S. 22-23				
Requirement Area	Course	Course Title	Prerequisites	Units
First Semester (FALL)				
E	GS 101A	Foundations of Success I		1
A1		Oral Communication		3
B1/LD Major	CHEM 111	General Chemistry I		3
LD Major	CHEM 111L	General Chemistry Lab I		2
			One from the following: Satisfactory score of 78 or higher on Mathematics Placement Exam, MATH 120 or MATH 125 (either course with grade C- or better).	
B4/LD Major	MATH 130	Calculus I		4
D1/CODE 1		Social Science/US Code		3
		Total:		16
Second Semester (SPRING)				
E	GS 101B	Foundations of Success II		1
A2		Written Communications		3
C1		Arts		3
			MATH 130 with grade C- or better.	
LD Major	MATH 131	Calculus II		3
LD Major	CHEM 112	General Chemistry II		5
		Total:		15
Third Semester (FALL)				
E		Lifelong Learning and Self-Development		1
A3		Critical Thinking		3
			CHEM 112 with grade C- or better.	
UD Major	CHEM 331	Organic Chemistry I		5
B2/LD Major	BIOL 140A	Principles of Cell and Molecular Biology		5
			MATH 131 with grade C- or better.	
LD Major	MATH 230	Calculus III		3
		Total:		17
Fourth Semester (SPRING)				
Second Composition	ENGL 200 or PHYS 230			3
			BIOL 140A with grade C- or better.	
LD Major	BIOL 140B	Principles of Organismal Biology		5
			CHEM 112 with grade C- or better.	
LD Major	CHEM 220	Quantitative Analysis		4
			CHEM 331 with grade C- or better.	
UD Major	CHEM 332	Organic Chemistry II		5
		Total:		17
Fifth Semester (FALL)				
C2		Humanities		3
F		Ethnic Studies		3
			CHEM 332 with grade C- or better.	
UD Major	CHEM 441	Biochemistry I		4
B3/LD Major	PHYS 135	Physics for Scientists and Engineers I		4
		Total:		14
Sixth Semester (SPRING)				
			CHEM 441 with grade C- or better.	
UD Major	CHEM 442	Biochemistry II		4
			Completion of GE areas A1, A2, A3 and B4.	
UD-B/Overlay		UD Science		3
LD Major	PHYS 136	Physics for Scientists and Engineers I		4
Add'l C1 or C2*		Arts or Humanities		3
		Total:		14
Seventh Semester (FALL)				
Code 2		US Code		3
			CHEM 443 with grade C- or better.	
UD Major	CHEM 443	Biochemistry Laboratory I		3
UD Major		Biochemistry Elective		3
			CHEM 332, MATH 230, PHYS 136, all with grade C- or better.	
UD Major	CHEM 351	Physical Chemistry I		3
D2				3
		Total:		15
Eighth Semester (SPRING)				
			CHEM 351 with grade C- or better.	
UD Major	CHEM 352	Physical Chemistry II		3
UD Major	CHEM 444	Biochemistry Laboratory II		3
			Completion of GE areas A1, A2, A3 and B4.	
UD-C/Overlay		UD Arts or Humanities		3
			Completion of GE areas A1, A2, A3 and B4.	
UD-D/Overlay		UD Social Science		3
		Total:		12
Total Units:				120

Note: No changes to, or from, the credit/no credit pattern are permitted after the Grade Type Change period. There are no exceptions to this rule. Courses in a student’s major department, regardless of course prefix, may not be taken “CR/NC,” unless that is the only grading pattern in the course.

CSUEB General Breadth and Graduation Requirement Checklist
Area A (9 units): Communication in the English Language & Critical Thinking (Must earn passing grade of C-/CR or better)
<input type="checkbox"/> A1. COMM 100 or 104, MLL 111
<input type="checkbox"/> A2. ENGL 101, 102, or 104
<input type="checkbox"/> A3. PHIL 100
Area B (9 units) : Scientific Inquiry & Quantitative Reasoning
<input type="checkbox"/> B1. Physical Science
<input type="checkbox"/> B2. Life Science
<input type="checkbox"/> B3. Laboratory Activity
<input type="checkbox"/> B4. Quantitative Reasoning (Must earn passing grade of C-/CR or better.)
Area C (9 units): Arts & Humanities - Minimum of three different disciplines as designated by course prefix (e.g., ART, THEA, MUS)
<input type="checkbox"/> C1. Arts
<input type="checkbox"/> C2. Humanities
<input type="checkbox"/> *Additional Lower-division Area C Course in Arts (C1) or Humanities (C2)
Area D (6 units) : Social Sciences - Minimum of three different disciplines as designated by course prefix (e.g., ANTH, ECON, POSC)
<input type="checkbox"/> D1.
<input type="checkbox"/> D2.
Area E (3 units) : Lifelong Learning and Self-Development
<input type="checkbox"/> E.
Area F (3 units): Ethnic Studies
<input type="checkbox"/> F.
Second Composition : Requires completion of GE A2 with a C-/CR or better. Must be completed before attaining junior standing.
<input type="checkbox"/> Second Composition
U.S. Code (American Institutions Requirement) - Two courses (6 units) covering three U.S. Code Requirements of US-1 (U.S. History), US-2 (U.S. Constitution), and US-3 (California State & Local Government).
<input type="checkbox"/> Code 1.
<input type="checkbox"/> Code 2.
Upper Division GE Requirements (9 units): Should be taken after completion of A1, A2, A3, and B4 with a C- (CR)
<input type="checkbox"/> UD-B. Upper-division Science Inquiry and Quantitative Reasoning
<input type="checkbox"/> UD-C.Upper-division Arts OR Humanities
<input type="checkbox"/> UD-D. Upper-division Social Sciences
Overlay Requirements (9 units): Courses may be upper or lower division, and GE or major
<input type="checkbox"/> Diversity (Div)
<input type="checkbox"/> Social Justice (SJ)
<input type="checkbox"/> Sustainability (S)
Elective Courses
Choose one (1) course from the following for 3 units:
CHEM 445 - Protein Structure Units: 3
CHEM 446 - Nucleic Acid Chemistry Units: 3
CHEM 447 - Major Organ Biochemistry Units: 3

*Students are required to take a minimum of 40 semester units as upper division (includes 9 units upper division GE)