Degree: Biological Sciences, B.S.: Cell and Molecular Biology Concentration 21-22				
Requirement Area	**Course**	**Course Title**	**Prerequisites**	**Units**
First Semester (FALL)				
E	GS 101A	Foundations of Success I		1
A1		Oral Communication		3
A2		Written Communication		3
B2/B3/LD Major	BIOL 140A	Principles of Cell and Molecular Biology		5
B4/LD Major	MATH 130	Calculus I	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).	4
			Total:	16
Second Semester (SPRING)				
E	GS 101B	Foundations of Success II		1
A3	PHIL 100	Workshop in Critical Thinking		3
C1		Arts		3
LD Major	BIOL 140B	Principles of Organismal Biology	BIOL 140A with grade C- or better.	5
Second Composition	ENGL 200	Second Comp		3
			Total:	15
Third Semester (FALL)				
B1/LD Major	CHEM 111	General Chemistry I		5
UD Major	BIOL 310	Genetic Analysis I	BIOL 140A.	4
LD Major	PHYS 125	Principles of Physics I		4
C2		Humanities		3
			Total:	16
Fourth Semester (SPRING)				
LD	CHEM 112	General Chemistry II	CHEM 111 with grade C- or better.	5
LD Major	PHYS 126	Principles of Physics II	PHYS 125.	4
UD Major	BIOL 410	Genetic Analysis II	BIOL 310.	3
D1/CODE 1		Social Science/US Code		3
			Total:	14
Fifth Semester (FALL)				
E		Lifelong Learning and Self-Development		1
F		Ethnic Studies		3
UD Major	CHEM 331	Organic Chemistry I	CHEM 112 with grade C- or better.	5
UD Major	BIOL 424	Bioinformatics	BIOL 310.	3
UD Major	BIOL 320	Principles of Evolutionary Biology	BIOL 310.	3
			Total:	15
Sixth Semester (SPRING)				
D2		Social Science		3
UD Major	CHEM 332	Organic Chemistry II	CHEM 331 with grade C- or better.	5
UD Major	BIOL 428	Genomics	BIOL 424.	3
UD Major/Elective 1				4
			Total:	15
Seventh Semester (FALL)				
Add'l C1 or C2*		Arts or Humanities		3
UD-B/Overlay		UD Science		3
UD Major	CHEM 441	General Biochemistry I	CHEM 332 with grade C- or better.	4
UD Major/Elective 2				4
			Total:	14
Eighth Semester (SPRING)				
Code 2		US Code		3
UD-C/Overlay		UD Arts or Humanities		3
UD-D/Overlay		UD Social Science		3
UD Major/Capstone	BIOL 426	Advanced Cell and Molecular Biology	BIOL 310.	3
UD Major	BIOL 427	Molecular and Cell Biology Lab	BIOL 310.	3
			Total:	15
Total Units:				120

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)
☐ A1. COMM 100 or 104, MLL 111
☐ A2. ENGL 101, 102, or 104
☐ A3. PHIL 100
Area B (9 units) : Scientific Inquiry & Quantitative Reasoning
☐ B1. Physical Science
☐ B2. Life Science
☐ B3. Laboratory Activity
☐ 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)
☐ C1. Arts
☐ C2. Humanities
☐ *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)
☐ D1.
☐ D2.
Area E (3 units) : Lifelong Learning and Self-Development
☐ E.
Area F (3 units): Ethnic Studies
☐ F.
Must be completed before attaining junior standing.
☐ Second Composition
three U.S. Code Requirements of US-1 (U.S. History), US-2 (U.S. Constitution),
☐ Code 1.
☐ Code 2.
Upper Division GE Requirements (9 units): Should be taken after completion of A1, A2, A3, and B4 with a C- (CR)
☐ UD-B. Upper-division Science Inquiry and Quantitative Reasoning
☐ UD-C.Upper-division Arts OR Humanities
☐ UD-D. Upper-division Social Sciences
Overlay Requirements (9 units): Courses may be upper or lower division, and GE or major
☐ Diversity (Div)
☐ Social Justice (SJ)
☐ Sustainability (S)
Elective Courses
Choose a minimum of 7 units of electives from the following list of courses. Note: BIOL 398 Co-operative Education and/or BIOL 490 Independent Study may be used for a maximum total of 3 units elective credit. Enrollment in these courses requires approval by a faculty member and the Department Chair.
BIOL 330 - General Microbiology Units: 5
BIOL 398 - Internship Units: 1-4
BIOL 415 - PCR, Sequencing and Fragment Analysis Units: 3
BIOL 420 - Cell and Molecular Biology Undergraduate Seminar Units: 2
BIOL 425 - Techniques in Mammalian Cell Culture Units: 3
BIOL 431 - Medical Microbiology Units: 5
BIOL 434 - Molecular Microbiology Units: 3
BIOL 440 - Molecular Virology Units: 3
BIOL 443 - Hematology Units: 4
BIOL 445 - Immunology Units: 3
BIOL 466 - Population Biology Units: 4
BIOL 468 - Molecular Ecology Units: 4
BIOL 490 - Independent Study Units: 1-4
CHEM 442 - Biochemistry II Units: 4

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.