

Degree: Chemistry, B.S. 22-23				
Requirement Area	Course	Course Title	Prerequisites	Units
<b>First Semester (FALL)</b>				
E	GS 101A	Foundations of Success I		1
A1				3
LD Major	CHEM 111	General Chemistry I		3
LD Major	CHEM 111L	General Chemistry Lab I		2
B4	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
F				3
<b>Total:</b>				16
<b>Second Semester (SPRING)</b>				
E	GS 101B	Foundations of Success II		1
A2	ENGL 102			3
C1				3
LD Major	MATH 131	Calculus II	MATH 130 with grade C- or better.	3
LD Major	CHEM 112	General Chemistry II	CHEM 111 with grade C- or better.	5
<b>Total:</b>				15
<b>Third Semester (FALL)</b>				
E				1
A3	PHIL 100	Workshop in Critical Thinking		3
UD Major	CHEM 331	Organic Chemistry I	CHEM 112 with grade C- or better.	5
B1/B3	PHYS 135	Physics for Scientists and Engineers I	MATH 130.	4
LD Major	MATH 230	Calculus III	MATH 131 with grade C- or better.	3
<b>Total:</b>				16
<b>Fourth Semester (SPRING)</b>				
Second Composition	ENGL 200 or PHYS 230			3
LD Major	PHYS 136	Physics for Scientists and Engineers II	MATH 130 and PHYS 135.	4
LD Major	CHEM 220	Quantitative Analysis	CHEM 112 with grade C- or better.	4
UD Major	CHEM 332	Organic Chemistry II	CHEM 331 with grade C- or better.	5
<b>Total:</b>				16
<b>Fifth Semester (FALL)</b>				
UD Major	CHEM 351	Physical Chemistry I	CHEM 332, MATH 230, PHYS 136, all with grade C- or better.	3
C2				3
LD Major	MATH 215	Introduction to Linear Algebra	MATH 130.	3
LD Major	PHYS 137	Physics for Scientists and Engineers III	MATH 130 and PHYS 136.	4
<b>Total:</b>				13
<b>Sixth Semester (SPRING)</b>				
UD Major	CHEM 340	Survey of Biochemistry	CHEM 230 or CHEM 332, both with grade C- or better.	3
UD Major	CHEM 352	Physical Chemistry II	CHEM 351 with grade C- or better.	3
UD Major	CHEM 355	Physical Chemistry Laboratory	CHEM 351.	2
Add'l C1 or C2*				3
D1/Code1				3
<b>Total:</b>				14
<b>Seventh Semester (FALL)</b>				
Code 2				3
UD Major	CHEM 410	Advanced Inorganic Chemistry	CHEM 332; and CHEM 350 or CHEM 351, all with grade C- or better.	4
UD Major	CHEM 420	Instrumental Analysis	CHEM 220, CHEM 332; and PHYS 126 or PHYS 136, all with grade C- or better.	3
B2				3
D2				3
<b>Total:</b>				16
<b>Eighth Semester (SPRING)</b>				
UD Major		Chemistry elective		3
UD Major	CHEM 415	Inorganic Chemistry Laboratory	CHEM 410 with grade C- or better.	2
UD-D/Overlay			Completion of GE areas A1, A2, A3, B1 and B4.	3
UD-C/Overlay			Completion of GE areas A1, A2, A3, B1 and B4.	3
UD-B/Overlay			Completion of GE areas A1, A2, A3, B1 and B4.	3
<b>Total:</b>				14
<b>Total Units:</b>				120

CSUEB General Breadth and Graduation Requirement Checklist
<b>Area A (9 units): Communication in the English Language &amp; Critical Thinking (Must earn passing grade of C-/CR or better)</b>
<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
<b>Area B (9 units): Scientific Inquiry &amp; Quantitative Reasoning</b>
<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.)
<b>Area C (9 units): Arts &amp; Humanities - Minimum of three different disciplines as designated by course prefix (e.g., ART, THEA, MUS)</b>
<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)
<b>Area D (6 units): Social Sciences - Minimum of three different disciplines as designated by course prefix (e.g., ANTH, ECON, POSC)</b>
<input type="checkbox"/> D1.
<input type="checkbox"/> D2.
<b>Area E (3 units): Lifelong Learning and Self-Development</b>
<input type="checkbox"/> E.
<b>Area F (3 units): Ethnic Studies</b>
<input type="checkbox"/> F.
<b>Second Composition : Requires completion of GE A2 with a C-/CR or better. Must be completed before attaining junior standing.</b>
<input type="checkbox"/> Second Composition
<b>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 &amp; Local Government).</b>
<input type="checkbox"/> Code 1.
<input type="checkbox"/> Code 2.
<b>Upper Division GE Requirements (9 units): Should be taken after completion of A1, A2, A3, and B4 with a C- (CR)</b>
<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
<b>Overlay Requirements (9 units): Courses may be upper or lower division, and GE or major</b>
<input type="checkbox"/> Diversity (Div)
<input type="checkbox"/> Social Justice (SJ)
<input type="checkbox"/> Sustainability (S)
<b>Additional Required Coursework</b>
An additional 18 units minimum are required to complete the B.S. Chemistry major for students NOT choosing the Bioanalytical and Forensics concentration:
CHEM 355 - Physical Chemistry Laboratory Units: 2
CHEM 410 - Advanced Inorganic Chemistry Units: 4
CHEM 415 - Inorganic Chemistry Laboratory Units: 2
MATH 215 - Introduction to Linear Algebra Units: 3
PHYS 137 - Physics for Scientists and Engineers III Units: 4
Plus choose one (1) additional course for a minimum of 3 units from the following:
CHEM 425 - Environmental Chemistry Units: 4
CHEM 430 - Advanced Organic Chemistry Units: 3
CHEM 450 - Classical and Statistical Thermodynamics Units: 3

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