CATALOG TERM: 2024-2027 **TOTAL UNITS REQUIRED = 120**

CHEMISTRY

Chemistry Education Option

- This worksheet is intended for supplemental use only. The University will use your Academic Requirements Report (ARR) to track your graduation requirements, including those for your major. Please continue to check your ARR for accuracy. If your ARR requires a correction, please submit an ARR Correction Form.
- Your Degree Planner will display the following requirements in the University's recommended sequence.
- With the exception of CHEM 100, all courses used for the major and preparation for the major must be completed with a grade of C (2.0) or higher.
- All non-articulated courses MUST be reviewed and approved by a faculty advisor.
- A minimum of 24 units counted toward the Chemistry major must be completed at CSUSM.
- Proficiency in Spanish is strongly encouraged for the Science Education option.
- Course offerings are subject to change. Verify course availability with the Chemistry Department.

PREPARATION FOR THE CHEMISTRY EDUCATION OPTION (58 UNITS)

Lower-division Chemistry Courses (24 units):

✓	Course	Units
	CHEM 100: Introduction to the Chemistry and Biochemistry Major	1
	CHEM 150: General Chemistry (*MATH 101, 103, 105 or MATH Category 1 or 2)	4
	CHEM 150L: General Chemistry Laboratory (⁺CHEM 150)	1
	CHEM 162: Enhanced General Chemistry II (*CHEM 150, 150L and MATH 125, 126 or 160)	4
	CHEM 201: Organic Chemistry (*CHEM 160 or 162)	3
	CHEM 201L: Organic Chemistry Laboratory (⁺CHEM 201)	2
	CHEM 202: Organic Chemistry (*CHEM 201, 201L)	3
	CHEM 202L: Organic Chemistry Laboratory (CHEM 201, 201L, ⁺CHEM 202)	2
	CHEM 275: Quantitative Investigations in Chemistry (*MATH 160, CHEM 201L, ⁺CHEM 160 or 162)	4

Non-Chemistry Supporting Courses (34 units):

✓	Course	Units
	ASTR 342: Elements of Astronomy	3
	BIOL 210: Intro to Cellular & Molecular Biology (⁺CHEM 150)	4
	BIOL 211: Intro to Organismal & Population Biology	4
	EDUC 350: Foundations of Teaching as a Profession	3
	ES 100: The Earth and Its Place in the Universe	3
	MATH 160: Calculus with Applications I (*MATH 125, 126 or pass Calculus Readiness Diagnostic)	5
	MATH 162: Calculus with Applications II (*MATH 160)	4
	PHYS 201: Physics of Mechanics & Sound (*MATH 160)	4
	PHYS 202: Physics of Electromagnetism & Optics (*PHYS 201 or 205, MATH 162)	4

**prerequisite; ⁺pre-/co-requisite; ^CHEM 499 must be taken twice for a total of 4 units*
˜CHEM 397 may be repeated for a total of 2 units

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OPTION MAJOR REQUIREMENTS (27 UNITS)

Upper-division Chemistry Courses (23 units):

✓	Course	Units
	CHEM 300: Literature of Chemistry (*CHEM 201)	3
	CHEM 308: Environmental Chemistry (*CHEM 160, 201)	3
	CHEM 341: General Biochemistry (*CHEM 201)	3
	CHEM 397: Supervised Chemistry Lecture/Lab Instruction (*CHEM 160, 202, instructor consent)	1
	CHEM 401: Physical Chemistry-Classical (*CHEM 160 or 162 and MATH 162 and PHYS 202 or 206)	4
	CHEM 404: Inorganic Chemistry (*CHEM 160 or 162 and CHEM 201, ⁺CHEM 404L)	4
	CHEM 404L: Inorganic Chemistry Laboratory (⁺CHEM 404)	1
	CHEM 499^: Senior Laboratory Thesis/Seminar (*instructor consent)	2
	CHEM 499^: Senior Laboratory Thesis/Seminar (*instructor consent)	2

Upper-division Science Electives (4 units):

Choose 4 units from the pre-approved list below or you may consult with a Chemistry faculty advisor for additional options:

CHEM 397˜: Supervised Chemistry Lecture/Lab Instruction (1) (*CHEM 160, 202, instructor consent)
CHEM 398A: Special Problems in Chemistry-Library (1) (*instructor consent)
CHEM 398B: Special Problems in Chemistry-Library (2) (*instructor consent)
CHEM 402: Physical Chemistry-Quantum (3) (*CHEM 162, MATH 162, PHYS 202; fall only)
CHEM 405: Physical Chemistry Laboratory (2) (⁺CHEM 401; spring only)
CHEM 416: Instrumental Methods of Analysis (5) (*CHEM 202, 202L, 275 300, PHYS 202)
CHEM 450: Protein Structure and Function (3) (*CHEM 341 or 351; spring only)
CHEM 490-494: Selected Topics (1-3) (*prerequisites vary)
Any 500-level CHEM course (1-3) (*prerequisites vary)

✓	Course	Units

**prerequisite; ⁺pre-/co-requisite; ^CHEM 499 must be taken twice for a total of 4 units*
˜CHEM 397 may be repeated for a total of 2 units