

**Preparation**

Up to five (5) units of chemistry credit can be applied toward a B.S. degree in Chemistry at Cal State San Marcos for students who have successfully completed the Advanced Placement Test in chemistry with a score of 4 or 5. It is recommended that students with a score of 4 or 5 on the AP Test in chemistry consider auditing [CHEM 150](#) during the fall semester in preparation for [CHEM 160](#). Students with a score of 3 on the AP Test in chemistry must consult with the [CHEM 150](#) instructor to determine the appropriate beginning course or take [CHEM 150](#).

**Special Conditions for the Bachelor of Science in Chemistry**

All courses counted toward the major, including Preparation for the Major courses, must be completed with a grade of C (2.0) or better. Transfer students must complete a minimum of 24 units counted toward the chemistry major at CSUSM.

**BACHELOR OF SCIENCE IN CHEMISTRY****Chemistry Option**

This option is for students seeking a broad training in the traditional areas of chemistry. This option is recommended for students wishing to enter a chemistry graduate program or seeking a position in industrial chemistry.

	<b>Units</b>
General Education*	51
Preparation for the Major*	43
Option Requirements	32

**The minimum number of units required for this degree is**

**120**

\*Six (6) lower-division General Education units in Area B (Math and Science) are automatically satisfied by courses taken in Preparation for the Major.

**Preparation for the Chemistry Option**

Non-Chemistry Supporting Courses (22 units)

<a href="#">MATH 160**</a>	5
<a href="#">MATH 162**</a>	4
<a href="#">MATH 260**</a>	4
<a href="#">PHYS 201</a>	4
<a href="#">PHYS 202</a>	4

Lower-Division Chemistry (22 units)

<a href="#">CHEM 150** &amp; 150L**</a>	5
<a href="#">CHEM 160</a>	3
<a href="#">CHEM 201 &amp; 202</a>	6
<a href="#">CHEM 201L &amp; 202L</a>	4
<a href="#">CHEM 275</a>	4

\*\*Some courses supporting the preparation or electives in the major may satisfy the Mathematics and Physical Science requirements of General Education. The courses fulfilling this double requirement are denoted by \*\*.

**Option Requirements**

Upper-Division Chemistry (32 units)

	<b>Units</b>
<a href="#">CHEM 300</a>	3
<a href="#">CHEM 341+</a>	3
<a href="#">CHEM 401, 402</a>	6
<a href="#">CHEM 404</a>	3
<a href="#">CHEM 404L</a>	1
<a href="#">CHEM 405</a>	2
<a href="#">CHEM 416</a>	5
<a href="#">CHEM 498++ or 499++</a>	4
Science Electives***	5

+Pre-health students who need two semesters of biochemistry should take the [CHEM 351/CHEM 352](#) sequence to satisfy most medical school requirements.

++ Course can be taken twice for a total of four (4) units.

\*\*\*Science major courses in the natural or mathematical sciences, chosen in consultation with the academic advisor, will be used to meet this requirement. With suitable elective choices, students in this option will earn a degree that is certified by the American Chemical Society.

**Chemistry Education Option**

This option is for students who wish to seek training in chemistry as well as pursue a career as a high school science instructor.

General Education^	51
Preparation for the Major^	56
Option Requirements	26

**The minimum number of units required for this degree is 120**

^Nine (9) lower-division General Education units in Area B (Math and Science) and three (3) upper-division General Education units in area BB are automatically satisfied by courses taken in Preparation for the Major.

**Preparation for the Chemistry Education Option**

Non-Chemistry Supporting Courses (34 units)

ASTR 342	3
BIOL 210	4
BIOL 211^^	4
EDUC 350	3
ES 100	3
MATH 160^^	5
MATH 162^^	4
PHYS 201	4
PHYS 202	4

Lower-Division Chemistry (22 units)

CHEM 150^^ and 150L^^	5
CHEM 160	3
CHEM 201 and 202	6
CHEM 201L and 202L	4
CHEM 275	4

*Proficiency in Spanish is strongly encouraged for the Science Education option and can be included as part of the Humanities Requirement of the General Education Requirement.*

**Option Requirements**

Upper-Division Chemistry (26 units)

CHEM 300	3
CHEM 308	3
CHEM 341	3
CHEM 397	1
CHEM 401	3
CHEM 404	3
CHEM 404L	1
CHEM 499+	4
Science Electives*	5

+Course must be taken twice, for a total of four (4) units.

\* Science major courses in the natural or mathematical sciences, chosen in consultation with the academic advisor, will be used to meet this requirement. A suitable set of electives may meet the certification requirements of the American Chemical Society.

\*\* Science major courses in the natural or mathematical sciences, chosen in consultation with the academic advisor, will be used to meet this requirement.

**MINOR IN CHEMISTRY**

Requirements (19 units)

	<b>Units</b>
CHEM 150 & 150L	5
CHEM 160	3
CHEM 175	1
CHEM 201 & 201L	5
CHEM 202 & 202L	5

Choice of 9 additional units from the following:

CHEM 308	3
CHEM 341	3
CHEM 398	1-2
CHEM 401	3
CHEM 402	3
CHEM 404	3
CHEM 450	3
CHEM 455	3
CHEM 490	3
CHEM 491	3
CHEM 492	3
CHEM 493	3
CHEM 494	3
CHEM 497	1

*Note: Biochemistry majors may not minor in Chemistry.*