

Name: _____
 Plan: Chemistry, B.S.
 SubPlan/Option: Biochemistry
 Min. Units Required: **120 units**

Major Required 48 units

- CHM1210 - General Chemistry I (3) (B1)
- CHM1210L - General Chemistry Laboratory I (1) (B3)
- CHM1220 - General Chemistry II (3) (B1)
- CHM1220L - General Chemistry Laboratory II (1) (B3)
- CHM2210 - Quantitative Analysis (2)
- CHM2210L - Quantitative Analysis Laboratory (2)
- CHM2910A - Chemical Communication Activity (1)
- CHM3140 - Organic Chemistry I (4)
- CHM3140L - Organic Chemistry Laboratory I (1)
- CHM3150 - Organic Chemistry II (3)
- CHM3150L - Organic Chemistry Laboratory II (1)
- CHM3270 - Biochemistry I (3)
- CHM3270L - Biochemistry Laboratory I (1)
- CHM3420 - Spectroscopic Methods (1)
- CHM3420L - Spectroscopic Methods Laboratory (1)
- CHM3430 - Separation Methods (1)
- CHM3430L - Separation Methods Laboratory (1)
- CHM3520L - Physical Chemistry Laboratory (2)
- MAT1140 - Calculus I (4) (B4)
- MAT1150 - Calculus II (4) (B4)
- PHY1510 - Introduction to Newtonian Mechanics (3) (B1)
- PHY1510L - Newtonian Mechanics Laboratory (1) (B3)
- PHY1520 - Introduction to Electromagnetism and Circuits (3)
- PHY1520L - Introductory Laboratory on Electromagnetism and Circuits (1)

Subplan/Option Required 24-25 units

- BIO1210 - Foundations of Biology: Energy, Matter, and Information (3) (B2)
- BIO1210L - Foundations of Biology: Energy, Matter, and Information Laboratory (1) (B3)
- BIO1220 - Foundations of Biology: Evolution, Ecology, and Biodiversity (3)
- BIO1220L - Foundations of Biology: Evolution, Ecology, and Biodiversity Laboratory (1)
- BIO2060 - Basic Microbiology (3) and
- BIO2060L - Basic Microbiology Laboratory (1)
- OR
- BIO2400 - Genetics (3)

- CHM3040 - Elements of Physical Chemistry I (3)
- CHM3050 - Elements of Physical Chemistry II (3)
- CHM3280 - Biochemistry II (3)
- CHM3280L - Biochemistry Laboratory II (1)
- CHM4530 - Informational Biomolecules and Recombinant DNA (3)

Subplan/Option Electives 8-9 units

Select at least one course from Option Electives and one BIO course.

Option Electives

- CHM3310 - Clinical Chemistry (2)
- CHM3310L - Clinical Chemistry Laboratory (1)
- CHM4510 - Enzymology (3)
- CHM4510L - Enzymology Laboratory (1)
- CHM4520 - Advanced Biomolecular Structure (3)
- CHM4540 - Advanced Metabolism (3)
- CHM4610 - Senior Project I (2) *

Suggested Chemistry (CHM) Electives

- CHM3440 - Electroanalytical Methods (1)
- CHM3440L - Electroanalytical Methods Laboratory (1)
- CHM4410 - Internship in Chemistry (1-2)
- CHM4500 - Bioanalytical Chemistry (3)
- CHM4500L - Bioanalytical Chemistry Laboratory (1)
- CHM4620 - Senior Project II (2) *
- CHM4630 - Research Student Seminar (1) *
- CHM 3000/4000 level: Additional course from Option Electives (1-4)

Suggested Biology (BIO) Electives

- BIO3620 - Applied Microbiology (2)
- BIO3620L - Applied Microbiology Laboratory (1)
- BIO3640 - Food Microbiology (2)
- BIO3640L - Food Microbiology Laboratory (1)
- BIO4020 - Developmental Biology (3)
- BIO4020L - Developmental Biology Laboratory (1)¹
- BIO4030 - Human Genetics (3)¹
- BIO4040 - Advanced Genetics (3)
- BIO4190 - Neuroscience I: Cell and Molecular Processes (3)¹
- BIO4190L - Neuroscience I: Cell and Molecular Processes Laboratory (1)¹
- BIO4300 - Concepts of Molecular Biology (3)
- BIO4320 - Molecular Biology Techniques (3)
- BIO4320L - Molecular Biology Techniques Laboratory (1)
- BIO4360 - Recombinant DNA and Protein Technology (3)
- BIO4360L - Recombinant DNA and Protein Technology Laboratory (1)
- BIO4380 - Bioinformatics (2)
- BIO4380L - Bioinformatics Laboratory (2)
- BIO4390 - Cancer Cell Biology (3)¹
- BIO4400 - Stem Cell Biology (3)¹
- BIO4400L - Stem Cell Biology Laboratory (1)¹
- BIO4450 - Physiology I: Cells (3)¹
- BIO4450L - Physiology I: Cells Laboratory (1)¹
- BIO4480 - Plant Physiology (3) 2
- BIO4480L - Plant Physiology Laboratory (1) 2
- BIO4540 - Plant Genetics (3)
- BIO4635 - Medical Microbiology (3)
- BIO4660 - Microbial Physiology (3)

Note(s):

*Students who do senior project should take CHM 4610, CHM 4620, and CHM 4630 to complete requirement. 1 BIO 3220 - Cell and Molecular Biology, is a prerequisite. 2 BIO 2050 - Form and Function in Plants / BIO 2050L - Form and Function in Plants Laboratory, is a prerequisite.

General Education Requirements 48 Units

Students should consult the Academic Programs website
<https://www.cpp.edu/~academic-programs/general-education-course-listings.shtml>
 for current information regarding this requirement. Unless specific courses are required, please refer to the list of approved courses under General Education Requirements, Areas A through E.

Area A. English Language Communication and Critical Thinking (9 units)

- At least 3 units from each sub-area
1. Oral Communication
 2. Written Communication
 3. Critical Thinking

Area B. Scientific Inquiry and Quantitative Reasoning (12 units)

- At least 3 units from B1, B2, B4, and B5 including 1 unit of lab from B1 or B2 to fulfill B3
1. Physical Sciences
 2. Life Sciences
 3. Laboratory Activity
 4. Mathematics/Quantitative Reasoning
 5. Science and Technology Synthesis

Area C. Arts and Humanities (12 units)

- At least 3 units from each sub-area and 3 additional units from sub-areas 1 and/or 2
1. Visual and Performing Arts
 2. Literature, Modern Languages, Philosophy and Civilization
 3. Arts and Humanities Synthesis

Area D. Social Sciences (12 units)

- At least 3 units from each sub-area
1. U.S. History and American Ideals
 2. U.S. Constitution and California Government
 3. Social Sciences: Principles, Methodologies, Value Systems, and Ethics
 4. Social Science Synthesis

Area E. Lifelong Learning and Self-Development (3 units)

Interdisciplinary General Education 21 Units

An alternate pattern for partial fulfillment of GE Areas A, C, and D available for students is the Interdisciplinary General Education (IGE) program. Students should see an advisor for specific GE coursework required by their major. Please refer to the University Catalog General Education Program section for additional information.

How IGE fulfills General Education Requirements:

Year	Completion of IGE Courses	Satisfies GE Requirements
First	IGE 1100, IGE 1200	A2 and C2
Second/Third	IGE 2100, IGE 2200	C1 and C2
	IGE 2300, IGE 2400	D1 and D3
Third/Fourth	IGE 3100	C3 or D4

American Institutions 6 Units

Courses that satisfy this requirement may also satisfy GE Area D1 and D2.

American Cultural Perspectives Requirement 3 Units

Refer to the University Catalog General Education Program section for a list of courses that satisfy this requirement. Course may also satisfy major, minor, GE, or unrestricted elective requirements.

Graduation Writing Test

All persons who receive undergraduate degrees from Cal Poly Pomona must pass the Graduation Writing Test (GWT). The test must be taken by the semester following completion of 60 units for undergraduates.