Cal Poly Pomona

Name:
Plan: **Environmental Biology, B.S.**
SubPlan/Option:
Min. Units Required: **120 units**

2019-2020 University Catalog
Degree Curriculum Sheet

Major Required — 58-59 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)
BIO2110L - Biostatistics Laboratory (1)
BIO2400 - Genetics (3)

BIO3040 - Environment and Society (3) (B5) or
BIO3120 - Biodiversity Conservation (3) (B5)

BIO3240 - Principles of Evolution (3)
BIO3250 - Principles of Ecology (3)
BIO3250L - Ecology Laboratory (1)

BIO4410 - Internship in Biology (1-2) (1-unit required) or
BIO4610 - Undergraduate Research (1)

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)

CHM2010 - Elements of Organic Chemistry (3) and
CHM2010L - Elements of Organic Chemistry Laboratory (1)
OR
CHM3140 - Organic Chemistry I (4) and
CHM3140L - Organic Chemistry Laboratory I (1)

ENG1101 - Stretch Composition II (3) (A2) or
ENG1103 - First Year Composition (3) (A2)

ENG2105 - Written Reasoning (3) (A3) or
PHL2020 - Critical Thinking (3) (A3)

MAT1200 - Calculus for Life Sciences (3) (B4)
PHY1210 - Physics of Motion, Fluids, and Heat (3) (B1)
PHY1210L - Physics of Motion, Fluids, and Heat Laboratory (1)
PHY1220 - Physics of Electromagnetism, Circuits, and Light (3)
PHY1220L - Electromagnetism, Circuits, and Light Laboratory (1) (B3)
RS3020 - Global Regenerative Systems (3) (D4)
STA1300 - Biostatistics (3) (B4)

Major Electives — 32-34 units

Breadth Electives

Select a minimum of 7 units from the list below:
CHM3150 - Organic Chemistry II (3)
CHM3150L - Organic Chemistry Laboratory II (1)

CHM3210 - Elements of Biochemistry (3) or
CHM3270 - Biochemistry I (3)

CHM3270L - Biochemistry Laboratory I (1)
GEO2400 - Geographic Information Systems (2)
GEO2400L - Geographic Information Systems Laboratory (1)
GSC1110 - Principles of Geology (3) (B1)
PLT2310 - Basic Soil Science (2)
PLT2310L - Basic Soil Science Laboratory (1)

Select two (8 units) of the following three sets of courses:
BIO2050 - Form and Function in Plants (3) and
BIO2050L - Form and Function in Plants Laboratory (1)

BIO2060 - Basic Microbiology (3) and
BIO2060L - Basic Microbiology Laboratory (1)

BIO2070 - Animal Biology (3) and
BIO2070L - Animal Biology Laboratory (1)

Ecology Conservation and Biodiversity (ECB) Emphasis

Recommended Major Required and Breadth Courses:

BIO3120 - Biodiversity Conservation (3) (B5)
GEO2400 - Geographic Information Systems (2)
GEO2400L - Geographic Information Systems Laboratory (1)
GSC1100 - Water in a Changing World (3)
GSC1110 - Principles of Geology (3) (B1)

Upper Division ECB Electives:

Select 17-19 units from the list of approved emphasis elective courses. At least 10 units must be taken at the 4000 or 5000 level. Up to 2 units of BIO 4410 and/or BIO 4610 may count towards upper division emphasis electives. Only one B5 course may count towards upper division emphasis electives.

BIO3040 - Environment and Society (3) (B5)
BIO3130 - Marine Biology (3) (B5)
BIO3220 - Cell and Molecular Biology (3)
BIO3500 - California Flora (1)
BIO3500L - California Flora Laboratory (1)
BIO4080 - Water Pollution Biology (3)
BIO4140 - Biology of Species Invasions (2)
BIO4180 - Marine Ecology (3)
BIO4180L - Marine Ecology Laboratory (1)
BIO4480 - Plant Physiology (3)
BIO4480L - Plant Physiology Laboratory (1)
BIO4490 - Marine Botany (2)
BIO4490L - Marine Botany Laboratory (2)
BIO4520 - Evolution of Plants (3)
BIO4520L - Evolution of Plants Laboratory (1)
BIO4550 - Field Biology (1-3)
BIO4550A - Field Biology Activity (1-3)
BIO4550L - Field Biology Laboratory (1-3)
BIO4570 - Plants and the Environment (2)
BIO4570L - Plants and the Environment Laboratory (2)
BIO4800 - Entomology (2)
BIO4800L - Entomology Laboratory (2)
BIO4820 - Biology of Fishes (2)
BIO4820L - Biology of Fishes Laboratory (2)
BIO4840 - Herpetology (2)
BIO4840L - Herpetology Laboratory (2)
BIO5280 - Community Ecology (3)
BIO5400 - Biogeography (3)
CHM3280 - Biochemistry II (3)
CHM3280L - Biochemistry Laboratory II (1)
GEO4100 - Remote Sensing of the Environment (2)
GEO4100L - Remote Sensing of the Environment Laboratory (1)
GEO4450 - Environmental Modeling with GIS (2)
GEO4450L - Environmental Modeling with GIS Laboratory (1)
GSC3230 - Geomorphology (2)
GSC3230L - Geomorphology Laboratory (1)
PLS3150 - Politics of Public Policy (3)
RS3010 - Life Support Processes (3) (B5)
RS3030 - Organization for Regenerative Practices (3) (C3 or D4)

Environmental Microbiology (EM) Emphasis

Recommended Major Required and Breadth Courses:

BIO2060 - Basic Microbiology (3)
BIO2060L - Basic Microbiology Laboratory (1)
CHM3140 - Organic Chemistry I (4)
CHM3140L - Organic Chemistry Laboratory I (1)
CHM3150 - Organic Chemistry II (3)
CHM3150L - Organic Chemistry Laboratory II (1)

CHM3210 - Elements of Biochemistry (3) or
CHM3270 - Biochemistry I (3)

CHM3270L - Biochemistry Laboratory I (1)

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.

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Upper Division (EM) Electives:

Select 17-19 units from the list of approved emphasis elective courses. At least 10 units must be taken at the 4000 or 5000 level. Up to 2 units of BIO 4410 and/or BIO 4610 may count towards upper division emphasis electives.

BIO3040 - Environment and Society (3) (B5) or
BIO3120 - Biodiversity Conservation (3) (B5)

BIO3220 - Cell and Molecular Biology (3)
BIO3600 - General Epidemiology (3)
BIO3620 - Applied Microbiology (2)
BIO3620L - Applied Microbiology Laboratory (1)
BIO4080 - Water Pollution Biology (3)
BIO4400 - Stem Cell Biology (3)
BIO4400L - Stem Cell Biology Laboratory (1)
BIO4635 - Medical Microbiology (3)
BIO4635L - Medical Microbiology Laboratory (1)
BIO4660 - Microbial Physiology (3)
BIO4660L - Microbial Physiology Laboratory (1)
BIO4680 - Microbial Ecology (2)
BIO4680L - Microbial Ecology Laboratory (1)
CE3201 - Environmental Engineering (3)
CE3201L - Environmental Engineering Laboratory (1)
CHM3280 - Biochemistry II (3)
CHM3280L - Biochemistry Laboratory II (1)
CHM4600 - Air Pollution Problems (2)
GEO4130 - Environmental Law (3)
PLT3030 - Pesticide Laws and Regulations (2)
PLT4110 - Environmental Toxicology (3)
PLT4310 - Soil Chemistry (2)
PLT4310L - Soil Chemistry Laboratory (1)

Restricted Electives — 0-3 units

Select a sufficient number of 2000, 3000, or 4000 level courses so that the total from "Major Required", Major Electives", "GE", and "Restricted Electives" is at least 120 units. BIO 2000 , BIO 4000 , BIO 4590S / BIO 4590AS , and BIO 4910S / BIO 4910AS may count towards restricted electives.