

<b>Major Required</b>	<b>58-59 units</b>	<b>Ecology Conservation and Biodiversity (ECB) Emphasis</b>	<b>General Education Requirements</b>	<b>48 Units</b>														
<p><b>BIO1210</b> - Foundations of Biology: Energy, Matter, and Information (3) (B2)  <b>BIO1210L</b> - Foundations of Biology: Energy, Matter, and Information Laboratory (1) (B3)  <b>BIO1220</b> - Foundations of Biology: Evolution, Ecology, and Biodiversity (3)  <b>BIO1220L</b> - Foundations of Biology: Evolution, Ecology, and Biodiversity Laboratory (1)  <b>BIO2110L</b> - Biostatistics Laboratory (1)  <b>BIO2400</b> - Genetics (3)</p> <p><b>BIO3040</b> - Environment and Society (3) (B5) <i>or</i>  <b>BIO3120</b> - Biodiversity Conservation (3) (B5)</p> <p><b>BIO3240</b> - Principles of Evolution (3)  <b>BIO3250</b> - Principles of Ecology (3)  <b>BIO3250L</b> - Ecology Laboratory (1)</p> <p><b>BIO4410</b> - Internship in Biology (1-2) (1-unit required) <i>or</i>  <b>BIO4610</b> - Undergraduate Research (1)</p> <p><b>CHM1210</b> - General Chemistry I (3) (B1)  <b>CHM1210L</b> - General Chemistry Laboratory I (1) (B3)  <b>CHM1220</b> - General Chemistry II (3) (B1)  <b>CHM1220L</b> - General Chemistry Laboratory II (1) (B3)</p> <p><b>CHM2010</b> - Elements of Organic Chemistry (3) <i>and</i>  <b>CHM2010L</b> - Elements of Organic Chemistry Laboratory (1)  <b>OR</b>  <b>CHM3140</b> - Organic Chemistry I (4) <i>and</i>  <b>CHM3140L</b> - Organic Chemistry Laboratory (1)</p> <p><b>ENG1101</b> - Stretch Composition II (3) (A2) <i>or</i>  <b>ENG1103</b> - First Year Composition (3) (A2)</p> <p><b>ENG2105</b> - Written Reasoning (3) (A3) <i>or</i>  <b>PHL2020</b> - Critical Thinking (3) (A3)</p> <p><b>MAT1200</b> - Calculus for Life Sciences (3) (B4)  <b>PHY1210</b> - Physics of Motion, Fluids, and Heat (3) (B1)  <b>PHY1210L</b> - Physics of Motion, Fluids, and Heat Laboratory (1)  <b>PHY1220</b> - Physics of Electromagnetism, Circuits, and Light (3)  <b>PHY1220L</b> - Electromagnetism, Circuits, and Light Laboratory (1) (B3)  <b>RS3020</b> - Global Regenerative Systems (3) (D4)  <b>STA1300</b> - Biostatistics (3) (B4)</p>	<p><b>Recommended Major Required and Breadth Courses:</b></p> <p><b>BIO2050</b> - Form and Function in Plants (3) <i>and</i>  <b>BIO2050L</b> - Form and Function in Plants Laboratory (1)</p> <p><b>BIO2070</b> - Animal Biology (3) <i>and</i>  <b>BIO2070L</b> - Animal Biology Laboratory (1)</p> <p><b>BIO3120</b> - Biodiversity Conservation (3) (B5)  <b>GE02400</b> - Geographic Information Systems (2)  <b>GE02400L</b> - Geographic Information Systems Laboratory (1)  <b>GSC1100</b> - Water in a Changing World (3)  <b>GSC1110</b> - Principles of Geology (3) (B1)</p> <p><b>Upper Division ECB Electives:</b></p> <p>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.</p> <p><b>BIO3040</b> - Environment and Society (3) (B5)  <b>BIO3130</b> - Marine Biology (3) (B5)  <b>BIO3220</b> - Cell and Molecular Biology (3)  <b>BIO3500</b> - California Flora (1)  <b>BIO3500L</b> - California Flora Laboratory (1)  <b>BIO4140</b> - Biology of Species Invasions (2)  <b>BIO4180</b> - Marine Ecology (3)  <b>BIO4180L</b> - Marine Ecology Laboratory (1)  <b>BIO4480</b> - Plant Physiology (3)  <b>BIO4480L</b> - Plant Physiology Laboratory (1)  <b>BIO4490</b> - Marine Botany (2)  <b>BIO4490L</b> - Marine Botany Laboratory (2)  <b>BIO4520</b> - Evolution of Plants (3)  <b>BIO4520L</b> - Evolution of Plants Laboratory (1)  <b>BIO4550</b> - Field Biology (1-3)  <b>BIO4550A</b> - Field Biology Activity (1-3)  <b>BIO4550L</b> - Field Biology Laboratory (1-3)  <b>BIO4570</b> - Plants and the Environment (2)  <b>BIO4570L</b> - Plants and the Environment Laboratory (2)  <b>BIO4580</b> - Ecology and Conservation of Hawaiian Ecosystems (2)  <b>BIO4580L</b> - Ecology and Conservation of Hawaiian Ecosystems Laboratory (2)  <b>BIO4800</b> - Entomology (2)  <b>BIO4800L</b> - Entomology Laboratory (2)  <b>BIO4820</b> - Biology of Fishes (2)  <b>BIO4820L</b> - Biology of Fishes Laboratory (2)  <b>BIO4840</b> - Herpetology (2)  <b>BIO4840L</b> - Herpetology Laboratory (2)  <b>BIO5280</b> - Community Ecology (3)  <b>BIO5400</b> - Biogeography (3)  <b>CHM3280</b> - Biochemistry II (3)  <b>CHM3280L</b> - Biochemistry Laboratory II (1)  <b>GE04100</b> - Remote Sensing of the Environment (2)  <b>GE04100L</b> - Remote Sensing of the Environment Laboratory (1)  <b>GE04450</b> - Environmental Modeling with GIS (2)  <b>GE04450L</b> - Environmental Modeling with GIS Laboratory (1)  <b>GSC3230</b> - Geomorphology (2)  <b>GSC3230L</b> - Geomorphology Laboratory (1)  <b>PLS3150</b> - Politics of Public Policy (3)  <b>PLT3650</b> - Sustainable Agriculture (2)  <b>PLT3650L</b> - Sustainable Agriculture Laboratory (1)  <b>RS3010</b> - Life Support Processes (3) (B5)  <b>RS3030</b> - Organization for Regenerative Practices (3) (C3 or D4)</p>	<p>Students should consult the Academic Programs website  <a href="https://www.cpp.edu/~academic-programs/general-education-course-listings.shtml">https://www.cpp.edu/~academic-programs/general-education-course-listings.shtml</a>  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.</p> <p><b>Area A. English Language Communication and Critical Thinking (9 units)</b>  <i>At least 3 units from each sub-area</i></p> <ol style="list-style-type: none"> <li>Oral Communication</li> <li>Written Communication</li> <li>Critical Thinking</li> </ol> <p><b>Area B. Scientific Inquiry and Quantitative Reasoning (12 units)</b>  <i>At least 3 units from B1, B2, B4, and B5 including 1 unit of lab from B1 or B2 to fulfill B3</i></p> <ol style="list-style-type: none"> <li>Physical Sciences</li> <li>Life Sciences</li> <li>Laboratory Activity</li> <li>Mathematics/Quantitative Reasoning</li> <li>Science and Technology Synthesis</li> </ol> <p><b>Area C. Arts and Humanities (12 units)</b>  <i>At least 3 units from each sub-area and 3 additional units from sub-areas 1 and/or 2</i></p> <ol style="list-style-type: none"> <li>Visual and Performing Arts</li> <li>Literature, Modern Languages, Philosophy and Civilization</li> <li>Arts and Humanities Synthesis</li> </ol> <p><b>Area D. Social Sciences (12 units)</b>  <i>At least 3 units from each sub-area</i></p> <ol style="list-style-type: none"> <li>U.S. History and American Ideals</li> <li>U.S. Constitution and California Government</li> <li>Social Sciences: Principles, Methodologies, Value Systems, and Ethics</li> <li>Social Science Synthesis</li> </ol> <p><b>Area E. Lifelong Learning and Self-Development (3 units)</b></p>																
<p><b>Major Electives</b></p> <p>Breadth Electives</p> <p><b>Select a minimum of 7 units from the list below:</b>  <b>CHM3150</b> - Organic Chemistry II (3)  <b>CHM3150L</b> - Organic Chemistry Laboratory II (1)</p> <p><b>CHM3210</b> - Elements of Biochemistry (3) <i>or</i>  <b>CHM3270</b> - Biochemistry I (3)</p> <p><b>CHM3270L</b> - Biochemistry Laboratory I (1)  <b>GE02400</b> - Geographic Information Systems (2)  <b>GE02400L</b> - Geographic Information Systems Laboratory (1)  <b>GSC1110</b> - Principles of Geology (3) (B1)  <b>GSC1100</b> - Water in a Changing World (3) (B1)  <b>PLT2310</b> - Basic Soil Science (2)  <b>PLT2310L</b> - Basic Soil Science Laboratory (1)</p> <p><b>Select two (8 units) of the following three sets of courses:</b>  <b>BIO2050</b> - Form and Function in Plants (3) <i>and</i>  <b>BIO2050L</b> - Form and Function in Plants Laboratory (1)</p> <p><b>BIO2060</b> - Basic Microbiology (3) <i>and</i>  <b>BIO2060L</b> - Basic Microbiology Laboratory (1)</p> <p><b>BIO2070</b> - Animal Biology (3) <i>and</i>  <b>BIO2070L</b> - Animal Biology Laboratory (1)</p>	<p><b>32-34 units</b></p>	<p><b>Interdisciplinary General Education</b></p> <p><b>21 Units</b></p> <p>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.</p> <p><b>How IGE fulfills General Education Requirements:</b></p> <table border="1"> <thead> <tr> <th>Year</th> <th>Completion of IGE Courses</th> <th>Satisfies GE Requirements</th> </tr> </thead> <tbody> <tr> <td>First</td> <td>IGE 1100, IGE 1200</td> <td>A2 and C2</td> </tr> <tr> <td>Second/Third</td> <td>IGE 2100, IGE 2200</td> <td>C1 and C2</td> </tr> <tr> <td></td> <td>IGE 2300, IGE 2400</td> <td>D1 and D3</td> </tr> <tr> <td>Third/Fourth</td> <td>IGE 3100</td> <td>C3 or D4</td> </tr> </tbody> </table> <p><b>American Institutions</b></p> <p><b>6 Units</b></p> <p>Courses that satisfy this requirement may also satisfy GE Area D1 and D2.</p> <p><b>American Cultural Perspectives Requirement</b></p> <p><b>3 Units</b></p> <p>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.</p> <p><b>Graduation Writing Test</b></p> <p>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.</p>	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	
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Third/Fourth	IGE 3100	C3 or D4																

**Environmental Microbiology (EM) Emphasis**
***Recommended Major Required and Breadth Courses:***

BIO2060 - Basic Microbiology (3)  
 BIO2060L - Basic Microbiology Laboratory (1)  
 BIO3040 - Environment and Society (3) (B5)  
 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)

***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.

BIO3120 - Biodiversity Conservation (3) (B5)  
 BIO3220 - Cell and Molecular Biology (3)  
 BIO3600 - General Epidemiology (3)  
 BIO3620 - Applied Microbiology (2)  
 BIO3620L - Applied Microbiology Laboratory (1)  
 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)  
 BIO4670 - General Virology (3)  
 BIO4670L - General Virology Laboratory (1)  
 BIO4680 - Microbial Ecology (2)  
 BIO4680L - Microbial Ecology 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)  
 RS3010 - Life Support Processes (3) (B5)

**Restricted Electives 0-6 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.