

CAL POLY POMONA

Name: _____
 Plan: Physics, B.S.
 SubPlan/Option: General
 Min. Units Required: 120 units

2018-2019 University Catalog Degree Curriculum Sheet

<p>Major Required Core 44 units</p> <p>CHM1210 - General Chemistry I (3) (B1) CHM1210L - General Chemistry Laboratory I (1) (B3) MAT1140 - Calculus I (4) (B4) MAT1150 - Calculus II (4) (B4) MAT2010 - Introduction to Computational Methods in Mathematics (2) MAT2010L - Introduction to Computational Methods in Mathematics Laboratory (1) MAT2140 - Calculus III (4) MAT2250 - Linear Algebra with Applications to Differential Equations (4) 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) PHY2530 - Introduction to Electromagnetic Radiation and Special Relativity (3) PHY2530L - Introductory Laboratory on Electromagnetic Radiation and Special Relativity (1) PHY2540 - Introduction to Thermal and Quantum Physics (3) PHY2540L - Introductory Laboratory on Thermal and Quantum Physics (1) PHY3600 - Mathematical Methods of Physics I (3) PHY3600A - Mathematical Methods of Physics I Recitation Activity (1) PHY4630 - Undergraduate Seminar (1)</p>	<p>General Emphasis 14 units</p> <p>A minimum of 7 units must be selected from the following list, with the proviso that students must take AT LEAST 2 units from PHY 4510A / PHY 4510L / PHY 4520A / PHY 4520L. Pairs of courses that must be taken together or in sequence are indicated with "and".</p> <p>AST3240 - Observational Astronomy (2) and AST3240A - Observational Astronomy Computer Activity (1) OR PHY3040 - Electronics for Scientists (2) and PHY3040L - Electronics for Scientists Laboratory (1) OR PHY4090 - Computational Physics (2) and PHY4090A - Computational Physics Activity (1) OR PHY4170 - Wave Optics (2) and PHY4170L - Wave Optics Laboratory (1) OR PHY4410 - Internship in Physics (1-2) OR PHY4610 - Senior Project I (1) and PHY4620 - Senior Project II (2)</p>	<p>General Education Requirements 48 Units</p> <p>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.</p> <p>Area A. English Language Communication and Critical Thinking (9 units)</p> <ol style="list-style-type: none"> 1. Oral Communication 2. Written Communication 3. Critical Thinking <p>Area B. Scientific Inquiry and Quantitative Reasoning (12 units)</p> <ol style="list-style-type: none"> 1. Physical Sciences 2. Life Sciences 3. Laboratory Activity 4. Mathematics/Quantitative Reasoning 5. Science and Technology Synthesis <p>Area C. Arts and Humanities (12 units)</p> <ol style="list-style-type: none"> 1. Visual and Performing Arts 2a. Philosophy and Civilization 2b. Literature and Language Other than English 3. Arts and Humanities Synthesis <p>Area D. Social Sciences (12 units)</p> <ol style="list-style-type: none"> 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 <p>Area E. Lifelong Learning and Self-Development (3 units)</p>															
<p>Subplan/Option Required Core 16 units</p> <p>PHY3210 - Advanced Classical Mechanics (3) PHY3210A - Advanced Classical Mechanics Recitation Activity (1) PHY4010 - Quantum Mechanics I (3) PHY4010A - Quantum Mechanics I Recitation Activity (1) PHY4140 - Electricity and Magnetism I (3) PHY4140A - Electricity and Magnetism I Recitation Activity (1) PHY4330 - Thermal and Statistical Physics (3) PHY4330A - Thermal and Statistical Physics Recitation Activity (1)</p>	<p>Select 2 units (one pair of lab/activity courses) from the following list:</p> <p>PHY4510A - Advanced Laboratory Physics - Advanced Instrumentation Recitation Activity (1) and PHY4510L - Advanced Laboratory Physics - Advanced Instrumentation Laboratory (1) OR PHY4520A - Advanced Laboratory Physics - Contemporary Experiments Recitation Activity (1) and PHY4520L - Advanced Laboratory Physics - Contemporary Experiments Laboratory (1)</p> <p>The remaining elective units may be selected from any upper-division PHY or AST courses (except AST 3050, AST 3420, PHY 3010, and PHY 3020) or other upper-division math, science, and engineering courses approved by the department.</p>	<p>Area C. Arts and Humanities (12 units)</p> <ol style="list-style-type: none"> 1. Visual and Performing Arts 2a. Philosophy and Civilization 2b. Literature and Language Other than English 3. Arts and Humanities Synthesis <p>Area D. Social Sciences (12 units)</p> <ol style="list-style-type: none"> 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 <p>Area E. Lifelong Learning and Self-Development (3 units)</p>															
<p>Subplan/Option Electives 14-15 units</p> <p>Astrophysics Emphasis 15 units</p>	<p>Unrestricted Electives 0-5 units</p> <p>Select a sufficient number of courses so that the total from "Major Required Core", "Subplan/Option Electives", "GE", and "Unrestricted Electives" is at least 104 units.</p>	<p>Interdisciplinary General Education 21 Units</p>															
<p>Emphasis Required Core 11 units</p> <p>AST3240 - Observational Astronomy (2) AST3240A - Observational Astronomy Computer Activity (1) AST4240 - Astrophysics I: Stars and Planetary Systems (3) AST4240A - Astrophysics I Recitation Activity (1) AST4250 - Astrophysics II: Galaxies and the Universe (3) AST4250A - Astrophysics II Recitation Activity (1)</p> <p>Emphasis Electives 4 units</p>	<p>Select a sufficient number of courses so that the total from "Major Required Core", "Subplan/Option Electives", "GE", and "Unrestricted Electives" is at least 104 units.</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>How IGE fulfills General Education Requirements:</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>Freshman</td> <td>IGE 1100, IGE 1200</td> <td>A2 and C2b</td> </tr> <tr> <td>Sophomore</td> <td>IGE 2100, IGE 2200</td> <td>C1 and C2a</td> </tr> <tr> <td>Junior</td> <td>IGE 2300, IGE 2400</td> <td>D1 and D3</td> </tr> <tr> <td>Senior</td> <td>IGE 3100</td> <td>C3 or D4</td> </tr> </tbody> </table>	Year	Completion of IGE Courses	Satisfies GE Requirements	Freshman	IGE 1100, IGE 1200	A2 and C2b	Sophomore	IGE 2100, IGE 2200	C1 and C2a	Junior	IGE 2300, IGE 2400	D1 and D3	Senior	IGE 3100	C3 or D4
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<p>An additional 4 units must be selected from the following list, with the proviso that students must take AT LEAST 2 units from PHY 4510A / PHY 4510L / PHY 4520A / PHY 4520L. Pairs of courses that must be taken together or in sequence are indicated with "and".</p> <p>PHY3040 - Electronics for Scientists (2) and PHY3040L - Electronics for Scientists Laboratory (1) OR PHY4090 - Computational Physics (2) and PHY4090A - Computational Physics Activity (1) OR PHY4170 - Wave Optics (2) and PHY4170L - Wave Optics Laboratory (1) OR PHY4410 - Internship in Physics (1-2) OR PHY4510A - Advanced Laboratory Physics - Advanced Instrumentation Recitation Activity (1) and PHY4510L - Advanced Laboratory Physics - Advanced Instrumentation Laboratory (1) OR PHY4520A - Advanced Laboratory Physics - Contemporary Experiments Recitation Activity (1) and PHY4520L - Advanced Laboratory Physics - Contemporary Experiments Laboratory (1)</p>	<p>Select a sufficient number of courses so that the total from "Major Required Core", "Subplan/Option Electives", "GE", and "Unrestricted Electives" is at least 104 units.</p>	<p>American Institutions 6 Units</p> <p>Courses that satisfy this requirement may also satisfy GE Area D1 and D2.</p> <p>American Cultural Perspectives Requirement 3 Units</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>Graduation Writing Test</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>															