

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

Major Required Core 44 units

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)

Subplan/Option Required Core 26 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)
 CHM1220 - General Chemistry II (3) (B1)
 CHM1220L - General Chemistry Laboratory II (1) (B3)
 GSC1110 - Principles of Geology (3) (B1)
 GSC1160 - Introduction to Astronomy (3) (B1)
 GSC1410L - Principles of Geology Laboratory (1) (B3)
 PHY3210 - Advanced Classical Mechanics (3)
 PHY3210A - Advanced Classical Mechanics Recitation Activity (1)
 STS2010 - Introduction to Science, Technology, and Society (3) (C2a)

Subplan/Option Electives 16 units

Select 3 units from the following list. Pairs of courses that must be taken together or in sequence are indicated with "and":
 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)

Select 4 units (one lecture/activity pair) from the following list:
 PHY4010 - Quantum Mechanics I (3) and
 PHY4010A - Quantum Mechanics I Recitation Activity (1)
 OR
 PHY4140 - Electricity and Magnetism I (3) and
 PHY4140A - Electricity and Magnetism I Recitation Activity (1)
 OR
 PHY4330 - Thermal and Statistical Physics (3) and
 PHY4330A - Thermal and Statistical Physics Recitation Activity (1)

Select 2 units (one pair of lab/activity courses) from the following list:
 PHY4510A - Advanced Laboratory Physics - Advanced Instrumentation Recitation Activity (1)
 PHY4510L - Advanced Laboratory Physics - Advanced Instrumentation Laboratory (1)
 OR
 PHY4520A - Advanced Laboratory Physics - Contemporary Experiments Recitation Activity (1)
 PHY4520L - Advanced Laboratory Physics - Contemporary Experiments Laboratory (1)

1 unit of supervised teaching experience or pedagogy seminar, which may be obtained via any of the following courses as well as other courses approved by the department.

PHY2000 - Special Study for Lower Division Students (1-3)
 PHY2990 - Special Topics for Lower Division Students (1-3)
 PHY4000 - Special Study for Upper Division Students (1-3)

PHY 4410 - Internship in Physics (3)
 PHY4990 - Special Topics for Upper Division Students (1-3)

Select 3 units chosen from:
 AST3050 - Archaeoastronomy (3) (B5)
 AST3420 - Life, the Universe, and Everything (3) (B5)
 PHY3010 - Energy and Society (3) (B5)
 PHY3020 - Physics for Future Presidents (3) (B5)
 PHY3060 - History of Physics (3) (B5)

An additional 3 units 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.

Unrestricted Electives 0-1 units

Select a sufficient number of courses so that the total from "Major Required Core", "Subplan/Option Required Core", "Subplan/Option Electives", "GE", and "Unrestricted Electives" is at least 120 units.

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)

1. Oral Communication
2. Written Communication
3. Critical Thinking

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

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)

1. Visual and Performing Arts
- 2a. Philosophy and Civilization
- 2b. Literature and Language Other than English
3. Arts and Humanities Synthesis

Area D. Social Sciences (12 units)

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
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

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.