

Major Required **64 units**

- BIO1110 - Life Science (2) (B2)
- BIO1110L - Life Science Laboratory (1) (B3)
- CS1300 - Discrete Structures (3)
- CS1400 - Introduction to Programming and Problem Solving (4)
- CS2400 - Data Structures and Advanced Programming (4)
- CS2600 - Systems Programming (3)
- CS2640 - Computer Organization and Assembly Programming (3)
- CS3010 - Numerical Methods and Computing (3)
- CS3110 - Formal Languages and Automata (3)
- CS3310 - Design and Analysis of Algorithms (3)
- CS3560 - Object-Oriented Design and Programming (3)
- CS3650 - Computer Architecture (4)
- CS3750 - Computers and Society (3) (B5 or D4)
- CS4080 - Concepts of Programming Languages (3)
- CS4310 - Operating Systems (3)
- CS4630 - Undergraduate Seminar (1)
- CS4800 - Software Engineering (3)
- MAT1140 - Calculus I (4) (B4)
- MAT1150 - Calculus II (4) (B4)
- PHY1510 - Introduction to Newtonian Mechanics (3) (B1)
- PHY1510L - Newtonian Mechanics Laboratory (1) (B3)
- STA2260 - Probability and Statistics for Computer Scientists and Engineers (3)

Major Electives **20 units**
At least 12 units from:

- CS3520 - Symbolic Programming (3)
- CS3700 - Parallel Processing (3)
- CS3800 - Computer Networks (3)
- CS4110 - Compilers and Interpreters (3)
- CS4200 - Artificial Intelligence (3)
- CS4210 - Machine Learning and Its Applications (3)
- CS4250 - Web Search and Recommender Systems (3)
- CS4350 - Database Systems (3)
- CS4450 - Computer Graphics (3)
- CS4500 - Computability (3)
- CS4600 - Cryptography and Information Security (3)
- CS4640 - Network and Web Security (3)
- CS4650 - Big Data Analytics and Cloud Computing (3)
- CS4660 - Wireless and Mobile Security (3)
- CS4700 - Game Development (3)
- CS4750 - Mobile Application Development (3)
- CS4810 - Software Engineering Practice (3)
- CS4990 - Special Topics for Upper Division Students (1-3)

No more than 6 units from:

- CS2250 - Introduction to Web Science and Technology (3)
- CS2410 - Fundamentals of Data Science (3)
- CS2450 - User Interface Design and Programming (3)
- CS2520 - Python for Programmers (3)
- CS2560 - C++ Programming (3)
- CS2610 - Introduction to Cyber Security and Digital Forensics (3)
- CS2990 - Special Topics for Lower Division Students (1-3)

No more than 2 units from:

- CS2000 - Special Study for Lower Division Students (1-3)
- CS4000 - Special Study for Upper Division Students (1-3)
- CS4410 - Internship in Computer Science (1-2)
- CS4610 - Senior Project (1)
- CS4620 - Senior Project (1)

General Education Requirements **48 Units**

Students should view their Degree Progress Report (DPR) for information regarding their General Education requirements. Unless specific GE courses are required for their major, please refer to the list of approved courses in the General Education Program in the University Catalog, catalog.cpp.edu. When viewing the catalog, students should select the catalog year associated with the GE requirements listed in their Degree Progress Report.

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 (9 units)

At least 3 units from each sub-area

1. U.S. History and American Ideals
2. U.S. Constitution and California Government
4. Social Science Synthesis

Area E. Lifelong Learning and Self-Development (3 units)
Area F. Ethnic Studies (3 units)
Interdisciplinary General Education **18 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 2150, IGE 2250	D1 and C2
	IGE 2350	C1
	IGE 3100	C3 or D4

American Institutions **6 Units**

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

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.