## Computer Science, B.S.

**Degree Curriculum Sheet**

**Cal Poly Pomona**

### Major Required

**65 units**

- BIO1110 - Life Science (2) (B2)
- BIO1110L - Life Science Laboratory (1) (B3)
- CS1300 - Discrete Structures (4)
- CS1400 - Introduction to Programming and Problem Solving (4)
- CS2400 - Data Structures and Advanced Programming (4)
- CS2640 - Computer Organization and Assembly Programming (3)
- CS3110 - Formal Languages and Automata (3)
- CS3210 - Design and Analysis of Algorithms (4)
- CS3850 - 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)
- MAT2250 - Linear Algebra with Applications to Differential Equations (4)
- PHY1510 - Introduction to Electromagnetism and Circuits (3)
- PHY1520L - Introductory Laboratory on Electromagnetism and Circuits (1)
- STA2260 - Probability and Statistics for Computer Scientists and Engineers (3)

### Major Electives

**19 units**

At least 12 units from:

- CS3010 - Numerical Methods (3)
- CS3250 - Symbolic Programming (3)
- CS3560 - Object-Oriented Design and Programming (3)
- CS3700 - Parallel Processing (3)
- CS3800 - Computer Networks (3)
- CS4110 - Compliers and Interpreters (3)
- CS4200 - Artificial Intelligence (3)
- CS4350 - Database Systems (3)
- CS4450 - Computer Graphics (3)
- CS4500 - Computability (3)
- CS4600 - Cryptography and Information Security (3)
- CS4850 - Big Data Analytics and Cloud Computing (3)
- CS4700 - Game Development (3)
- CS4810 - Software Engineering Practice (3)
- CS4990 - Special Topics for Upper Division Students (1-3)

No more than 3 units from:

- CS2450 - Programming Graphical User Interfaces (3)
- CS2520 - Python for Programmers (3)
- CS2560 - C++ Programming (3)
- CS2600 - Unix and Scripting (3)
- CS2990 - Special Topics for Lower Division Students (1-3)

No more than 4 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)
- MAT3470 - Combinatorics (3)
- MAT3800 - Mathematics of Operations Research (3)
- MAT3810 - Mathematics of Operations Research II (3)
- MAT4020 - Introduction to Numerical Analysis I (3)
- MAT4750 - Graph Theory (3)
- MAT4800 - Mathematical Programming (3)
- MAT4850 - Introduction to Mathematical Modeling I (3)
- MAT4860 - Introduction to Mathematical Modeling II (3)

### Min. Units Required:

**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](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
  4. Social Science Synthesis

**Area E. Lifelong Learning and Self-Development (3 units)**

**Interdisciplinary General Education (IGE) Program**

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:

<table>
<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>Third/Fourth</td>
<td>IGE 2300, IGE 2400</td>
<td>D1 and D3</td>
</tr>
<tr>
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<td>IGE 3100</td>
<td>C3 or D4</td>
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</tbody>
</table>

### 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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https://www.cpp.edu/~academic-programs/academic-advising/tools/sheets-roadmaps/index.shtml

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