

PHYSICS (BS)

Degree Requirements and Curriculum

In addition to the program requirements on this page, students must also satisfy requirements outlined in more detail in the Minimum Requirements for Graduation (<https://catalog.calpoly.edu/academic-standards-policies/general-requirements-bachelors-degree/#generaleducationtext>) section of this catalog, including:

- 40 units of upper-division courses
- 2.0 GPA
- Graduation Writing Requirements (GWR)
- U.S. Cultural Pluralism (USCP)

Note: No Major course with a lab component may be selected as credit/no credit. In addition, no more than 12 units of cooperative or internship courses can count towards your degree requirements. [Students intending to double major must consult the physics department chair, preferably prior to sophomore year.](#)

Code	Title	Units
MAJOR COURSES		
PHYS 1100	Introduction to the Physics Major	1
PHYS 1141	General Physics I (5A & 5C) ¹	4
PHYS 1143	General Physics II ²	4
PHYS 2211	General Physics III: Modern Physics	4
PHYS 3301	Statistical Mechanics	3
PHYS 3305	Classical Mechanics I (Upper-Division 2/5) ¹	3
PHYS 3316	Instrumentation and Techniques of Experimental Physics ²	4
PHYS 3320	Methods of Theoretical Physics	4
PHYS 3339	Communicating Physics	1
PHYS 3340	Quantum Physics Laboratory I ²	1
PHYS 3341	Quantum Physics Laboratory II ²	1
PHYS 4405	Quantum Mechanics I	3
PHYS 4408	Electromagnetic Fields and Waves I	3
PHYS 4461	Senior Project I	2
or PHYS 4461 & PHYS 4462	Senior Project I and Senior Project II	
Technical Electives		
Select from the following:		19
Select any 3000-4000 level ASTR, CSC, DATA, GEOL, MATH, PHYS, or STAT courses ^{2,3}		
CSC 2600	Computing with Data	
CHEM 1122	Fundamentals of Chemical Reactivity	
Lab Elective		
Select from the following: ²		4
ASTR 4444	Observational Astronomy	
PHYS 3323	Optics	
PHYS 4425	Solid State Physics	
PHYS 4428	Nonlinear Dynamics and Chaos	
SUPPORT COURSES		
CSC 1001 & 1001L	Fundamentals of Computer Science and Fundamentals of Computer Science Laboratory	4
CHEM 1120	Fundamentals of Chemical Structure and Properties	4
MATH 1261	Calculus I (2) ¹	4
MATH 1262	Calculus II	4
MATH 2263	Calculus III	3
MATH 2341	Linear Analysis	4
GENERAL EDUCATION (GE)		

(See GE program requirements below)

33

FREE ELECTIVES

Free Electives ⁴

3

Total Units
120
¹ Required in Major or Support; also satisfies General Education (GE) requirement.

² Major courses with lab component may not be taken as CR/NC grading: PHYS 1143, PHYS 3316, PHYS 3323, PHYS 3340, PHYS 3341, PHYS 4428, ASTR 4444, or EE 4422.

³ Total combined elective credit in PHYS 4400, PHYS 4404, ASTR 4400, ASTR 4404, GEOL 4400, and GEOL 4404 limited to 4 units.

⁴ If a General Education (GE) course is used to satisfy a Major or Support requirement, additional units of Free Electives may be needed to complete the total units required for the degree.

General Education (GE) Requirements

- 43 units required, 10 of which are specified in Major and/or Support.
- If any of the remaining 33 Units is used to satisfy a Major or Support requirement, additional units of Free Electives may be needed to complete the total units required for the degree.
- See the complete GE course listing (<https://catalog.calpoly.edu/academic-standards-policies/general-requirements-bachelors-degree/#generaleducationtext>).
- A grade of C- or better is required in one course in each of the following GE Areas: 1A (English Composition), 1B (Critical Thinking), 1C (Oral Communication), and 2 (Mathematics and Quantitative Reasoning).

Lower-Division General Education

Area 1	English Communication and Critical Thinking	
1A	Written Communication	3
1B	Critical Thinking	3
1C	Oral Communication	3
Area 2	Mathematics and Quantitative Reasoning	
2	Mathematics and Quantitative Reasoning (3 units in Support) ¹	0
Area 3	Arts and Humanities	
3A	Arts	3
3B	Humanities: Literature, Philosophy, Languages other than English	3
Area 4	Social and Behavioral Sciences (Area 4 courses must come from at least two different course prefixes.)	
4A	American Institutions (Title 5, Section 40404 Requirement)	3
4B	Social and Behavioral Sciences	3
Area 5	Physical and Life Sciences	
5A	Physical Sciences (3 units in Major) ¹	0
5B	Life Sciences	3
5C	Laboratory (may be embedded in a 5A or 5B course) (1 units in Major) ¹	0
Area 6	Ethnic Studies	
6	Ethnic Studies	3

Upper-Division General Education

Upper-Division 2/5	Mathematics and Quantitative Reasoning or Physical and Life Sciences (3 units in Major) ¹	0
Upper-Division 3	Arts and Humanities	3
Upper-Division 4	Social and Behavioral Sciences (Area 4 courses must come from at least two different course prefixes.)	3

Total Units
33
¹ Required in Major or Support; also satisfies General Education (GE) requirement.