2011-13 Cal Poly Catalog

Physics Department

BS PHYSICS

❑ *60 units upper division* ❑ *GWR*
❑ *2.0 GPA* ❑ *USCP*

** = Required in Major; also satisfies GE*

Course sequencing: See flowcharts at www.csmadvising.calpoly.edu/

[1] *Note: Major courses with lab component may not be taken credit/no credit.*

MAJOR COURSES

PHYS 141 General Physics IA	4
PHYS 132 General Physics II (B3 & B4)*	4
PHYS 133 General Physics III	4
PHYS 202 Physics on the Computer	4
PHYS 206 Instrumentation in Experimental Phys.	3
PHYS 211 Modern Physics I	4
PHYS 212 Modern Physics II	4
PHYS 256 Electrical Measurements Laboratory	1
PHYS 301 Thermal Physics I	4
PHYS 302 Classical Mechanics I	4
[2] PHYS 322 Vibrations and Waves	3
PHYS 340 Quantum Physics Laboratory I	2
PHYS 341 Quantum Physics Laboratory II	2
PHYS 405 Quantum Mechanics I	4
PHYS 408 Electromagnetic Fields and Waves I	4
PHYS 461 Senior Project I *or* PHYS 463 Senior Project – Lab Research I	2
PHYS 462 Senior Project II *or* PHYS 464 Senior Project – Lab Research II	2
CHEM 127 General Chemistry	4
CHEM 128 General Chemistry	4
MATH 141 Calculus I (B1)*	4
MATH 142 Calculus II (B1)*	4
MATH 143 Calculus III	4
MATH 241 Calculus IV	4
MATH 244 Linear Analysis I	4
MATH 304 Vector Analysis	4
MATH 344 Linear Analysis II	4
Advanced Physics electives or Concentration courses (see below)	21
	112

GENERAL EDUCATION (GE)

72 units required, 12 of which are specified in Major.
→See page 39 for complete GE course listing.
→Minimum of 12 units required at the 300 level.

Area A Communication (12 units)	
A1 Expository Writing	4
A2 Oral Communication	4
A3 Reasoning, Argumentation, and Writing	4
Area B Science and Mathematics (4 units)	
B1 Mathematics/Statistics * 8 units in Major	0
B2 Life Science	4
B3 Physical Science * 4 units in Major	0
B4 One lab taken with either a B2 or B3 course	
Area C Arts and Humanities (20 units)	
C1 Literature	4
C2 Philosophy	4
C3 Fine/Performing Arts	4
C4 Upper-division elective	4
Area C elective (Choose one course from C1-C4)	4
Area D/E Society and the Individual (20 units)	
D1 The American Experience (40404)	4
D2 Political Economy	4
D3 Comparative Social Institutions	4
D4 Self Development (CSU Area E)	4
D5 Upper-division elective	4
Area F Technology Elective (upper division) (4 units)	4
	60
FREE ELECTIVES	**8**
	180

Advanced Physics Electives or Concentrations (select one)

Advanced Physics Electives

This is the default curriculum required for students who do not declare a concentration.

Select two of the following: PHYS 323, 342, 357, 417, 422, 423, 452, ASTR 444	2-8
Select one from: PHYS 424 or MATH 418	3-4
PHYS 300-400 level elective units (minimum)	9
Additional 300 or 400 level elective units (if needed): PHYS/ASTR/GEOL/MATH/ STAT/CSC prefix (excludes ASTR 324; CSC 302, 310); CSC 101, 231, 234, 235	0-7
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For students anticipating an industrial career, PHYS 323, 357, 412, 413, 423, and 452 are suggested.

For students anticipating graduate work in physics, PHYS 303, 401, 406, 409, 424, and MATH 408 are suggested. PHYS 357 is suggested for students who anticipate becoming experimental physicists.

Electronics Concentration

Students are not allowed to enroll in EE 228 until they have a) completed PHYS 357 and MATH 344, and b) received the approval of advisors in both Physics and Electrical Engineering. Students are then allowed to enroll in EE courses with physics courses substituting for EE prerequisites.

PHYS 357 Advanced Instrumentation in Experimental Physics	3
EE 228 Continuous-Time Signals and Systems	4
EE 302 Classical Control Systems	3
EE 328 Discrete Time Signals and Systems	3

[1] The following major courses cannot be taken as CR/NC grading: PHYS 132, 133, 256, 323, 340, 341, 342, 357, 417, 422, 423, 452, ASTR 444.

[2] Students in Electro-optics Concentration should take PHYS 323 instead of PHYS 322.

EE 342 Control Systems Laboratory	1
EE 368 Signals and Systems Laboratory	1
EE 336 Microprocessor System Design *or* EE 306 and EE 346 Semiconductor Device Electronics and Laboratory	4
Elective chosen from Advanced Physics Electives (see above)	2
	21

Electro-optics Concentration

Students following this concentration should take PHYS 323 instead of PHYS 322 as a major requirement.

Students are not allowed to enroll in EE 228 until they have a) completed PHYS 357 and MATH 344, and b) received approval of advisors in both Physics and Electrical Engineering. Students are then allowed to enroll in EE courses with physics courses substituting for EE prerequisites.

PHYS 357 Advanced Instrumentation in Exp Physics.	3
PHYS 423 Advanced Optics	4
EE 228 Continuous-Time Signals and Systems	4
EE 403 Fiber Optics Communication	3
EE 418 Photonic Engineering	3
EE 443 Fiber Optics Laboratory	1
EE 458 Photonic Engineering Laboratory	1
Elective chosen from Advanced Physics Electives (see above)	2
	21