

Updated 7/29/2019

FRESHMAN			SOPHOMORE			JUNIOR			SENIOR		
Fall	Winter	Spring	Fall	Winter	Spring	Fall	Winter	Spring	Fall	Winter	Spring
	<i>General Physics IA</i> <b>PHYS 141 (4)<sup>2</sup></b> (MATH 141 w/min C-; MATH 142 or 182†; Recom: HS physics)	<i>General Physics II</i> <b>PHYS 132 (4)<sup>2</sup></b> (PHYS 131 or 141 or HNRS 131) [B3/B4]	<i>General Physics III</i> <b>PHYS 133 (4)<sup>2</sup></b> (PHYS 131, 141, or HNRS 131; MATH 142. Recom: MATH 241)	<i>Modern Physics I</i> <b>PHYS 211 (4)</b> (PHYS 132 ; 133; MATH 241; Recom: MATH 242 or 244)	<i>Modern Physics II</i> <b>PHYS 212 (4)</b> (PHYS 211)	<i>Classical Mechanics I</i> <b>PHYS 302 (4)</b> (PHYS 131 or 141; MATH 241; MATH 242 or 244)	<i>Thermal Physics I</i> <b>PHYS 301 (4)</b> (PHYS 211)	<i>Quantum Mechanics I</i> <b>PHYS 405 (4)</b> (PHYS 212; 302; 320 or 322; MATH 241; 242 or 244)	<i>Electromagnetic Fields &amp; Waves I</i> <b>PHYS 408 (4)</b> (PHYS 133; MATH 304 or PHYS 320)	<b>Technical Elective</b> <b>(3-4)<sup>4</sup></b> *	<b>Technical Elective</b> <b>(4)<sup>4</sup></b> *
<i>Calculus I</i> <b>MATH 141 (4)<sup>1</sup></b> * [B1]	<i>Calculus II</i> <b>MATH 142 (4)<sup>1</sup></b> (MATH 142 w/min C- or Instr. Consent) [B1]	<i>Calculus III</i> <b>MATH 143 (4)<sup>1</sup></b> (MATH 142 w/min C- or Instr. Consent)	<i>Calculus IV</i> <b>MATH 241 (4)</b> (MATH 143)	<i>Linear Algebra I</i> <b>MATH 206 (4)</b> (MATH 143 )	<i>Differential Equations I</i> <b>MATH 242 (4)</b> (MATH 206 and MATH 241)	<i>Methods of Theoretical Physics I</i> <b>PHYS 320 (4)</b> (PHYS 211; MATH 242 or 244)	<i>Methods of Theoretical Physics II</i> <b>PHYS 321 (4)</b> (PHYS 320)	<b>Technical Elective</b> <b>(4)<sup>4</sup></b> *	<i>Senior Project I</i> <b>PHYS 461 (2)</b> (Instructor Consent)	<i>Senior Project II</i> <b>PHYS 462 (2)</b> (Instructor Consent)	<b>Technical Elective</b> <b>(4)<sup>4</sup></b> *
<i>Gen Chem for Physical Science &amp; Engineering I</i> <b>CHEM 124 (4)<sup>2</sup></b> (MATH 118; Recom: HS chemistry)	<i>Gen Chem for Physical Science &amp; Engineering II</i> <b>CHEM 125 (4)<sup>2</sup></b> (CHEM 124)	<b>GE (4)</b> **	<b>GE (4)</b> **	<i>Electronics and Instrumentation</i> <b>PHYS 206 (4)</b> (PHYS 133 and MATH 143)	<i>Physics on the Computer</i> <b>PHYS 202 (4)</b> (PHYS 133; and MATH 241 or 244)	<i>Quantum Physics Laboratory I</i> <b>PHYS 340 (2)</b> (PHYS 206; 212; & one: PHYS 202, CSC 101, 231, or 234)	<i>Quantum Physics Laboratory II</i> <b>PHYS 341 (2)</b> (PHYS 340)	<b>Technical Elective</b> <b>(3-4)<sup>4</sup></b> *	<b>Technical Elective</b> <b>(2)<sup>4</sup></b> *		
<i>Expository Writing</i> <b>ENGL 133/134 (4)**</b> [A1] Can be taken anytime during Freshman Year			<b>GE (4)</b> **	<b>GE (4)</b> **	<b>GE (4)</b> **	<b>GE (4)</b> **	<b>GE (4)</b> **	<b>GE (4)</b> **	<b>GE (4)</b> **	<b>GE (4)</b> **	<b>GE (4)</b> **
<i>Oral Communication</i> <b>COMS 101/102 (4)**</b> [A2] Can be taken anytime during Freshman Year										<b>Free Elective</b> <b>(4)<sup>3</sup></b>	<b>Free Elective</b> <b>(4)<sup>3</sup></b>
<b>GE (4)</b> **	<i>Reasoning, Argumentation, &amp; Writing</i> [A3] <b>COMS 126; COMS/ENGL 145; ENGL 148; PHIL 126 (4)**</b> (Completion of GE A1 with a C- or better) Can be taken anytime between Winter of Freshman and Winter of Sophomore Years.					<b>Graduation Writing Requirement GWR*</b> (Students can attempt to fulfill the requirement after 90 earned units; students should complete the requirement before senior year)					
16	16	16	16	16	16	14	14	15-16	12	13-14	12-16
										<b>TOTAL:</b>	<b>180</b>

**Notes:**

**MOST GENERAL EDUCATION COURSES CAN BE TAKEN IN ANY ORDER AS LONG AS PREREQUISITES ARE MET**

\* Refer to current catalog for prerequisites.

\*\* One course from each of the following GE areas must be completed: A1, A2, A3, B2, B7 (formerly Area F), C1, C2, C3, C4, C1-C5 elective, D1, D2, D3, D5, and E (formerly Area D4). B7, C4, and D5 should be taken only after Junior standing is reached (90 units).

Refer to online catalog for GE course selection, United States Cultural Pluralism (USCP) and Graduation Writing Requirement (GWR).

USCP requirement can be satisfied by some (but not all) courses within GE categories: B7, C3, C4, D1, D3, D5, or E.

† Course can be taken previously or concurrently.

<sup>1</sup> Calculus workshops (Math 151, 152, 153) are recommended for elective credit. They require concurrent enrollment in the associated section of Calculus.

<sup>2</sup> Supplemental Workshops (SCM 150) recommended in your first year. These courses will count for elective credit.

<sup>3</sup> 8 total units of elective credit required for the major. Electives can be taken at anytime. MATH 151 & SCM 150 workshops recommended.

<sup>4</sup> Complete 20 units of Advanced Physics Electives. Select 9 units of 300-400 level electives in PHYS/ASTR/GEOL/MATH/STAT/DATA/CSC, or CSC 101, 231, 234, 235 (excludes ASTR 324, CSC 302, CSC 310). Select an additional 11 units of 300-400 level PHYS prefix courses, or ASTR 444, with at least 2 courses (Laboratory Technical Elective) from PHYS 323, 342, 357, 417, 422, 423, 452, ASTR 444<sup>5</sup>. Total combined elective credit in PHYS 400, PHYS 404, ASTR 400, ASTR 404, GEOL 400, and GEOL 404 limited to 8 units, with a maximum of 2 units per quarter.

<sup>5</sup> ASTR 444 can be used only once in the Advanced Physics Electives. If used to meet the Laboratory Technical Elective, excess units will go into Physics or Breadth Electives.

**Legend:**

Course Title		<b>Major (112)</b>
Course # (Units)		
(Prerequisite)		<b>General Ed. (60)</b>
[GE Area]		<b>Free Electives (8)</b>

**NOTE:** This document can be used as a compact display of courses and other curricular requirements at the time of publication of the 2019-2020 catalog. The Degree Progress Report must be used to track students' progress in all degree requirements, throughout their Cal Poly career.

**Note: No major course with a lab component may be selected as credit/no credit.**

MAJOR COURSES (112)		Units
PHYS 141	Gen Physics IA	4
PHYS 132	Gen Physics II (B3 & B4) <sup>1,2</sup>	4
PHYS 133	Gen Physics III <sup>1</sup>	4
PHYS 202	Physics on the Computer	4
PHYS 206	Electronics and Instrumentation <sup>1</sup>	4
PHYS 211	Modern Physics I	4
PHYS 212	Modern Physics II	4
PHYS 301	Thermal Physics I	4
PHYS 302	Classical Mechanics I	4
PHYS 320	Methods of Theoretical Physics I	4
PHYS 321	Methods of Theoretical Physics II	4
PHYS 340	Quantum Physics Lab I <sup>1</sup>	2
PHYS 341	Quantum Physics Lab II <sup>1</sup>	2
PHYS 405	Quantum Mechanics I	4
PHYS 408	Electromagnetic Fields & Waves I	4
PHYS 461	Senior Project I	2
PHYS 462	Senior Project II	2
CHEM 124	Gen Chem for PSE I	4
CHEM 125	Gen Chem for PSE II	4
MATH 141	Calculus I (B1) <sup>2</sup>	4
MATH 142	Calculus II (B1) <sup>2</sup>	4
MATH 143	Calculus III	4
MATH 206	Linear Algebra I	4
MATH 241	Calculus IV	4
MATH 242	Differential Equations I	4
<b>Technical Electives - A total of 20 units required</b>		<b>20</b>
Physics Electives <sup>1,3,4,5,6,7</sup> - Select 11 units Select <u>from any</u> 300 or 400-level PHYS prefix courses, or ASTR 444; two courses must be labs <sup>1</sup> selected from PHYS 323, 342, 357, 417, 422, 423, 452; ASTR 444 (Excess to Breadth)		
Breadth Elective <sup>1,3,4,5,6</sup> - Select 9 units Select any 300 or 400-level PHYS/ASTR/GEOL /MATH/STAT/DATA/CSC/ CSC 101, 231, 234, 235 (excludes ASTR 324, CSC 302, CSC 310)		

**GENERAL EDUCATION (GE)****60**

72 units required, 12 of which are specified in Major/Support

**Minimum of 12 units required at the 300 level.**

**Area A Communication****12**

A1 Expository Writing ..... 4

A2 Oral Communication ..... 4

A3 Reasoning, Argumentation & Writing ..... 4

**Area B Math, Science, & Quantitative Reasoning****8**

B1 Math/Statistics (8 units in Major) <sup>2</sup> ..... 4

B2 Life Science..... 4

B3 Physical Science (4 units in Major) <sup>2</sup> ..... 4

B4 One lab taken with either a B2 or B3 course

B7 Upper-division elective ..... 4

(formerly Area F)

**Area C Arts and Humanities****20**

C1 Literature ..... 4

C2 Philosophy ..... 4

C3 Fine/Performing Arts ..... 4

C4 Upper-division elective ..... 4

C1-C5 Elective ..... 4

**Area D Society and the Individual****16**

D1 The American Experience (40404) ..... 4

D2 Political Economy ..... 4

D3 Comparative Social Institutions ..... 4

D5 Upper-division elective..... 4

**Area E Lifelong Learning and Self-Development****4**

(formerly Area D4)

**FREE ELECTIVES ..... 8**

<sup>1</sup> Major courses with a lab component may not be selected as CR/NC grading. Examples include: PHYS 132, 133, 206, 323, 340, 341, 342, 357, 417, 422, 423, 452; ASTR 444.

<sup>2</sup> Required in Major; also satisfies GE.

<sup>3</sup> For students anticipating an industrial career, PHYS 323, 357, 412, 413, 423, and 452 are suggested.

<sup>4</sup> 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.

<sup>5</sup> Total combined elective credit in PHYS 400, 404, ASTR 400, 404, GEOL 400, and GEOL 404 limited to 8 units, with a maximum of 2 units per quarter.

<sup>6</sup> ASTR 444 can be used only once in the technical electives. If used to meet the Laboratory Technical Elective, excess units will go into Physics or Breadth Electives.

<sup>7</sup> Excess units will count towards Breadth Electives units.

**OTHER DEGREE REQUIREMENTS:**

- Cal Poly, Higher Ed, and Major GPA must all be at least 2.00
- For students admitted Fall 2016 and after, a grade of C- or higher is required in GE A1, A2, A3, and one GE B1 course

**All students must complete:**

- United States Cultural Pluralism Requirement
- Graduation Writing Requirement
- 60 units Upper Division (any 300-400 level classes)
- Upper Division units in the Major: 27
- Residency Requirements: See Degree Progress Report for details