

## BACHELOR OF SCIENCE IN PHYSICS

### Option in Materials Science Major Requirements Worksheet 2018-2019 Catalog

*NOTE: This checklist is not intended to replace advising from the major department. Students should consult with the major advisor to determine the appropriate sequence of courses. This checklist is to inform students of major requirements and course prerequisites only; the [CSULB Course Catalog](#) takes precedence in any conflict. CSULB Enrollment Services prepares the Academic Requirements Report, which is the official graduation verification.*

#### Degree Progress

Freshman need to complete MATH 122 and CHEM 111A within one calendar year and CHEM 111B and CHEM 220A within two calendar years, all with a grade of "C" or better. Transfer students need to complete CHEM 220A and PHYS 151 within one calendar year, all with a grade of "C" or better.

Physics majors must have a "C" average in the major. Physics students must achieve a grade of "C" or better in each required course in the major.

#### Take ALL of the following courses:

Semester	Grade	Course #	Course Title	Prerequisites
		CHEM 111A	General Chemistry I (5)	Passing score on CPT or other measures. <i>Pre/Corequisite:</i> MATH 112A or higher
		MATH 122	Calculus I (4)	Appropriate algebra/calculus placement; or MATH 111 and either MATH 112B or 113
		MATH 123	Calculus II (4)	MATH 122
		MATH 224	Calculus III (4)	MATH 123 or 222
		MATH 247	Introduction to Linear Algebra (3)	MATH 123
		PHYS 151	Mechanics and Heat (4)	<i>Pre/Corequisite:</i> MATH 122 or 123 or 224
		PHYS 152	Electricity and Magnetism (4)	PHYS 151. <i>Pre/Corequisite:</i> MATH 123
		PHYS 254	Applied Modern Physics (3)	PHYS 152 or EE 210. <i>Pre/Corequisite:</i> MATH 224
		PHYS 255	Lab. on Modern Physics (1)	<i>Pre/Corequisite:</i> PHYS 254

#### UPPER DIVISION COURSES (See major faculty advisor)

#### Take ALL of the following courses:

Semester	Grade	Course #	Course Title	Prerequisites
		MATH 364A	Ordinary Differential Equations I (3)	MATH 224. <i>Pre/Corequisite:</i> MATH 247
		PHYS 310	Analytic Mechanics (3)	PHYS 152. <i>Pre/Corequisite:</i> MATH 247 or 364A or 370A
		PHYS 320	Thermodynamics (3)	PHYS 152. <i>Pre/Corequisite:</i> PHYS 254
		PHYS 340A	Electricity and Magnetism I (3)	PHYS 152 and 310. <i>Pre/Corequisite:</i> MATH 370A or 364A

Semester	Grade	Course #	Course Title	Prerequisites
		PHYS 340B	Electricity and Magnetism II (3)	PHYS 340A
		PHYS 350	Modern Physics (3)	PHYS 310; MATH 370A or 364A
		PHYS 360	Physics with Symbolic Algebra Software (3)	PHYS 254. <i>Pre/Corequisite</i> : MATH 247
		PHYS 380	Electronics (4)	PHYS 152
		PHYS 450	Quantum Physics I (3)	PHYS 310 and 340A and 350

**Take ONE other upper-division mathematics course:**

Semester	Grade	Course #	Course Title	Prerequisites

**Take ONE of the following laboratory courses:**

Semester	Grade	Course #	Course Title	Prerequisites
		PHYS 445	Physics Lab. Course (3)	PHYS 254; PHYS 450 or instructor consent
		PHYS 446	Physics Lab. Course (3)	PHYS 254; PHYS 450 or instructor consent
		PHYS 447	Physics Lab. Course (3)	PHYS 254; PHYS 450 or instructor consent
		PHYS 480	Physics Lab. Course (3)	PHYS 380 or instructor consent

**Take ALL of the following courses:**

Semester	Grade	Course #	Course Title	Prerequisites
		PHYS 385	Materials Science (3)	CHEM 111A and PHYS 152. CHEM 111B or PHYS 320. Completion of CHEM 111B is strongly recommended
		PHYS 385C	Materials Science Colloquium (1)	CHEM 111A and PHYS 152. CHEM 111B or PHYS 320. Completion of CHEM 111B is strongly recommended
		PHYS 385L	Materials Science Lab. (2)	CHEM 111A and PHYS 152. CHEM 111B or PHYS 320. Completion of CHEM 111B is strongly recommended
		PHYS 496	Special Problems in Physics (2)	Instructor consent and senior standing