

Bachelor of Science in Physics and Astronomy, Option in Materials Science (120 units)

This new state-supported program was recommended by the Academic Senate on May 5, 2016 and concurred by the President on May 31, 2016.

Program Description

This option is designed primarily for those interested in careers that involve the physics of materials and the study of materials in relation to their applications. It is particularly appropriate for those seeking employment in private industry or government service as well as those students contemplating graduate work in these fields. This option requires approximately 72 units in the major, of which 32 units are in lower division and 40 are in upper division.

All students must achieve at least a 2.0 grade-point average in each of the following: 1. the entire college record, 2. all units attempted at CSULB, 3. all courses in the major, and 4. all upper division courses in the major completed at CSULB.

Requirements

Lower Division:

PHYS 151 Mechanics and Heat (4)

Prerequisite/Corequisite: MATH 122.

PHYS 152 Electricity and Magnetism (4)

Prerequisite: PHYS 151; Prerequisite/Corequisite: MATH 123.

CHEM-111A General Chemistry (5)

Prerequisites: A passing score on the Chemistry Placement Examination.

Corequisite: MATH 109 or higher.

PHYS 254 Applied Modern Physics (3)

Prerequisite: PHYS 152 or EE 210

Prerequisite/Corequisite: MATH 224.

PHYS 255 Laboratory on Modern Physics (1)

Prerequisite/Corequisite: PHYS 254.

MATH 122 Calculus I (4)

Prerequisite: Appropriate MDPT placement or a grade of "C" or better in MATH 111 and 113.

MATH 123 Calculus II (4)

Prerequisite: A grade of "C" or better in MATH 122.

MATH 224 Calculus III (4)

Prerequisite: A grade of "C" or better in MATH 123 or 222.

MATH 247 Introduction to Linear Algebra (3)

Prerequisite: MATH 123.

Upper Division:

Take all of the following courses:

- MATH 364A Ordinary Differential Equations I (3)
 Prerequisites: MATH 224
 Prerequisite/Corequisite: MATH 247.
- PHYS 310 Analytic Mechanics (3)
 Prerequisite: PHYS 151
 Corequisite: MATH 364A or MATH 370A.
- PHYS 320 Thermodynamics (3)
 Prerequisite: PHYS 152.
 Prerequisite/Corequisite, PHYS 254.
- PHYS 340A Electricity and Magnetism I (3)
 Prerequisites: PHYS 152, PHYS 310.
 Prerequisite/Corequisite: MATH 370A or MATH 364A.
- PHYS 340B Electricity and Magnetism II (3)
 Prerequisite: PHYS 340A.
- PHYS 350 Modern Physics (3)
 Prerequisites: PHYS 310; MATH 370A or MATH 364A.
- PHYS 360 Physics with Symbolic Algebra Software (3)
 Prerequisite: PHYS 254.
 Prerequisite/Corequisite: MATH 247.
- PHYS 380 Electronics (4)
 Prerequisite: PHYS 152.
- PHYS 450 Quantum Physics I (3)
 Prerequisites: PHYS 310, PHYS 340A, PHYS 350.

Take a 3 unit upper division Mathematics course.

Take 3 units of upper division physics electives.

OPTION IN MATERIALS SCIENCE (6 units)

PHYS 385 Materials Science (3)

Prerequisite: CHEM 111A and PHYS 152 and (CHEM 111B or PHYS 320), completion of CHEM 111B is strongly recommended.

PHYS 385L Materials Science Laboratory (2)

Prerequisite: CHEM 111A and PHYS 152 and (CHEM 111B or PHYS 320), completion of CHEM 111B is strongly recommended

PHYS 385C Materials Science Colloquium (1)

Prerequisite: CHEM 111A and PHYS 152 and (CHEM 111B or PHYS 320), completion of CHEM 111B is strongly recommended.

EFFECTIVE: Fall 2017

Campus Code: PHYSBS02U1

College: 65

Career: UD

CIP Code: 40.0801

CSU Code: 19021

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