

# PHYSICAL SCIENCES

The Physical Sciences program offers lower division courses which provide an understanding of physical science concepts and thus permits students to transfer to a baccalaureate degree program in various physical science majors.

## Associate in Science Transfer Degrees

- Physics - Associate in Science Transfer Degree (<https://lbcc-public.courseleaf.com/degrees-certificates/physical-sciences/physics-ast/>)
- UCTP in Physics - Associate in Science UC Transfer Degree (<https://lbcc-public.courseleaf.com/degrees-certificates/physical-sciences/physics-uctp/>)

## Associate in Science Degrees

- Physical Sciences - Associate in Science (<https://lbcc-public.courseleaf.com/degrees-certificates/physical-sciences/physical-sciences-as/>)

### PHYS 2A (C-ID PHYS 105) 4.5 units

#### General Physics

**72 hours lecture, 36 hours laboratory**

Prerequisite: MATH 40.

Grading: letter grade or pass/no pass.

This course is an algebra and trigonometry based general physics course for students not majoring in physics or engineering. It covers kinematics, dynamics, work and energy, momentum, rotational motion, properties of fluids, simple harmonic motion, waves, temperature and ideal gases, heat and thermodynamics.

Transferable to both UC and CSU; see counselor for limitations

### PHYS 2B (C-ID PHYS 110) 4.5 units

#### General Physics

**72 hours lecture, 36 hours laboratory**

Prerequisite: PHYS 2A.

Grading: letter grade or pass/no pass.

This course is an algebra and trigonometry based general physics course for students not majoring in physics or engineering. The course covers electric charge, Coulomb's Law, electric field, electric potential, capacitance, electric current, D.C. circuits, magnetism, electromagnetic induction, A.C. circuits, electromagnetic waves, geometric optics, the wave nature of light, the Special Theory of Relativity and introduction to Quantum Theory and models of the atom.

Transferable to both UC and CSU; see counselor for limitations

### PHYS 3A (C-ID PHYS 205) 5.5 units

#### Physics for Sci. & Eng. - Mechanics

**90 hours lecture, 36 hours laboratory**

Prerequisite: MATH 60.

Recommended Preparation: PHYS 2A.

Grading: letter grade or pass/no pass.

This course is the first course of a calculus-based sequence for majors in physics, chemistry, mathematics, engineering, astronomy and certain other fields. This course covers kinematics, vectors, forces, energy, translational and rotational motion, momentum, static fluids, simple harmonic oscillations and mechanical waves.

Transferable to both UC and CSU; see counselor for limitations

### PHYS 3B (C-ID PHYS 210) 4.5 units

#### Physics for Sci. & Eng. - E & M

**72 hours lecture, 36 hours laboratory**

Prerequisite: PHYS 3A.

Corequisite: MATH 70.

Grading: letter grade or pass/no pass.

This course is the second course of a calculus-based sequence for majors in physics, chemistry, mathematics, engineering, astronomy and certain other fields. The course covers electric charge, Coulomb's Law, electric field, Gauss's law, electric potential, capacitance, electric current, D.C. circuits, magnetic fields, electromagnetic induction, A.C. circuits, Maxwell's equations and electromagnetic waves.

Transferable to both UC and CSU; see counselor for limitations

### PHYS 3C (C-ID PHYS 215) 4.5 units

#### Physics for Sci. & Eng. - Modern Physics

**72 hours lecture, 36 hours laboratory**

Prerequisite: PHYS 3A.

Corequisite: MATH 70.

Recommended Preparation: PHYS 3B.

Grading: letter grade or pass/no pass.

This course is part of a calculus-based sequence for majors in physics, chemistry, mathematics, engineering, astronomy and certain other fields. Physics 3C includes thermodynamics, electromagnetic waves, ray optics, wave optics, special relativity, basic quantum theory, wave mechanics, properties of atoms, nuclear structure and nuclear reactions.

Transferable to both UC and CSU; see counselor for limitations

### PHYS 4 (C-ID PHYS 140) 4 units

#### Survey of Chemistry and Physics

**54 hours lecture, 54 hours laboratory**

Prerequisite: Elementary algebra or qualifying through the LBCC math placement process.

Grading: letter grade.

This is a one semester, inquiry-based physical science course suitable for satisfying the general education requirements of non-science majors and especially of students who aspire to become elementary school teachers. Students construct a meaningful understanding of physics and chemistry concepts through lecture and laboratory activities. The course covers: matter, physical and chemical properties, energy, motion, light, atomic structure, bonding, solutions and chemical reactions. The interdependence of chemistry and physics, their applications in everyday life, and the power and limitations of scientific inquiry will be emphasized.

Not open to students who already have credit in CHEM 4.

Transferable to both UC and CSU; see counselor for limitations