

# DETAILED COURSE DESCRIPTION

**Course Number** PHYS 135

**Course Title** Introduction to Physics for Physical Science and Mathematics Majors I

**Target audience** The course is designed for freshman-level physical science or physics majors. Well prepared students may consider Physics 137 as an alternative. The course includes a two-hour weekly lab.

**Corequisites** Mathematics 132 or Mathematics 141

**Catalog description** Calculus-based physics of mechanics, sound, waves, and thermodynamics. May be taught as lecture with lab, integrated lecture and lab, or online with on-campus lab. Check with instructor.

## Expected previous knowledge

**Concepts** Physical science at the high-school level. A previous physics course in physics is not required.

**Skills** Differential calculus should be taken concurrently.

## Course Objectives

The objectives are: To cover the basics of 1) Newtonian physics, including motion in one and two dimensions, Newton's laws, work, energy, momentum, center of mass, rotations, equilibrium, 2) oscillations, 3) waves, 4) solids, liquids, gases, thermal dynamics, 5) sound

## Sample Text

Urone/Hinrichs/Dirks/Sharma's OpenStax College Physics

## Minimum Material Covered

Equations of motion in one and two dimensions

Newton's three laws

Circular motion

Work and kinetic energy

Conservation of energy

Impulse and linear momentum

Center of mass

Rotation and rolling objects

Static equilibrium

Oscillations and one dimensional waves

Solids, liquids, and gases, thermal dynamics

Sound