Syllabus

PHY 151 University Physics I

General Information

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Department
Science and Technology

Course Prefix
PHY

Course Number
151

Course Title
University Physics I

Course Information

Credit Hours
4

Lecture Contact Hours
3

Lab Contact Hours
2

Other Contact Hours
1

Catalog Description
First semester of a two-semester sequence suitable for transfer students pursuing degrees in engineering, computer science, physics, or professional programs which require calculus-based physics. Topics include motion in one and two dimensions, force laws, energy, momentum, conservation principles, gravity, rotational motion, static equilibrium, and fluids. PHY101 or high school physics with a C or better is strongly recommended.

Key Assessment
This course does not contain a Key Assessment for any programs
Prerequisites
MAT 271 with a C or better

Co-requisites
None

Grading Scheme
Letter

First Year Experience/Capstone Designation
This course DOES NOT satisfy the outcomes applicable for status as a FYE or Capstone.

SUNY General Education
This course is designated as satisfying a requirement in the following SUNY Gen Ed category
Natural Sciences

FLCC Values

Institutional Learning Outcomes Addressed by the Course
Inquiry
Perseverance
Interconnectedness

Course Learning Outcomes

Course Learning Outcomes
1. Apply Newton’s laws of motion and the conservation laws in the study of mechanical systems.
2. Make and analyze measurements of physical phenomena, applying the proper use of units, dimensions, statistics, uncertainty, graphing, and calculation.
3. Apply arithmetic, algebraic, geometric, and Calculus principles to the analysis of mechanical physical systems.
4. Connect physics to other sciences, the arts, and everyday life.

Program Affiliation
This course is not required as a core course in a program
Outline of Topics Covered

Units, Conversions, and Dimensional Analysis

Precision, Accuracy, and Uncertainty Analysis

Kinematics in One Dimension
  Constant Acceleration
  Variable Acceleration

Vectors and Coordinate Systems

Kinematics in Two Dimensions

Force and Motion
  Variable Forces

Newton's Laws and Applications
  Friction
  Drag

Conservation Laws

Work and Energy
  Work Done by Constant Forces
  Work Done by Variable Forces

Impulse and Momentum

Torque and Rotational Motion
  Deriving the Moment of Inertia

Static Equilibrium

Elasticity
  Young's Modulus, Shear Modulus

Gravitation

Fluid Mechanics