

General Education Course Objectives and Learning Outcomes

Course

Name: Algebra Based Physics I

Course Number: PHYS 2014 & 2000

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Department:

Physical Science

COMMON COURSE OBJECTIVES AND STUDENT LEARNING OUTCOMES THAT ARE OR WILL BE LISTED ON THE SYLLABUS OF EVERY SECTION OF THIS COURSE:

<i>Course objectives:</i>	This is a survey course that introduces laws of mechanics and thermodynamics at the introductory level. Upon completing this course students will learn how to use laws of mechanics and thermodynamics to explain different phenomena.
<i>Student learning outcomes:</i>	<p>Students completing PHYS 2014 and PHYS 2000 will be able to</p> <ul style="list-style-type: none"> • Understand kinematics of linear and rotational motion and use the kinematics equations to solve for linear or angular position, velocity and acceleration. • Apply Newton’s Laws of motion to describe linear and rotational motion • Apply work-energy notion to describe dynamical problems • Comprehend conservation laws of mechanics, including conservation of linear and angular momentum and conservation of energy and use them in solving problems, including collisions • Use simple harmonic motion to describe wave motion and calculate different characteristics of the wave • Understand and apply laws of static and dynamic fluids • Obtain fundamental understanding for thermodynamic phenomena

ADHE ACTS INFORMATION FOR THIS COURSE (IF APPROPRIATE)

<i>ACTS Course number:</i>	PHYS 2014 (when taken with PHYS 2000)
<i>Copy the ACTS course objectives and learning outcomes:</i>	<p>Algebra and trigonometry-based physics course. Not recommended for physics and engineering majors. Topics include mechanics in one and two dimensions, fluids, thermodynamics, and mechanical waves and sound. Lab required. This is an algebra and trigonometry-based physics course and it is strongly recommended that the student should have completed College Algebra with a “C” or better.</p> <p>Expected Student Learning Outcomes: The student will use algebra and trigonometry in order to be able to explain, describe, discuss, recognize, and/or apply knowledge and understanding of the following:</p> <ul style="list-style-type: none"> • Scientific method • Measurement and error • Vectors • Newton’s Laws of Motion • Work and energy • Linear momentum

- Rotational kinematics and dynamics
- Fluids
- Thermodynamics
- Mechanical waves and sound

WHICH ATU GENERAL EDUCATION GOALS DOES THIS COURSE FULFILL? (NO MORE THAN TWO)

- Communicate effectively
 - Written communication
 - Oral communication
- Think critically
- Develop ethical perspectives
 - Diversity
 - Empathy
 - Leadership
- Apply scientific and quantitative reasoning**
 - Scientific reasoning
 - Quantitative reasoning
- Apply the value of the arts and humanities
- Practice civic engagement

DESCRIPTION OF HOW THIS COURSE MEETS THE GENERAL EDUCATION GOALS CHOSEN ABOVE (TO BE INCLUDED ON THE SYLLABUS OF EVERY SECTION OF THIS COURSE)

In this course (lab and lecture), students are introduced to basic principles of mechanics and thermodynamics that govern the physical world. The students practice applying the concepts and using scientific and quantitative reasoning and to solve problems, make predictions or describe the outcomes.