

General Education Course Objectives and Learning Outcomes

Course Name: Introduction to Physical Science Course Number: PHSC 1013

Submitted by: Department: Physical Sciences

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>	Students will gain an understanding of the natural laws governing the physical world, with emphasis upon the discovery and development of these laws and their effect upon man. Includes topics in physics and chemistry and may include other topics from other disciplines in physical science such as astronomy, meteorology, and/or geology.
<i>Student learning outcomes:</i>	<p>Students will be able to:</p> <ul style="list-style-type: none"> • Explain the fundamentals of the scientific method and how it applies to measurements. • Apply 1-D kinematics and dynamics equations to situations to correctly describe the motion, force, work, and/or energy. • Apply the relation among energy, mass, specific heat, and temperature change for a substance. • Solve for unknown variables using Ohm’s Law and power equations. • Using a periodic table, correctly identify properties of an element including its symbol, atomic number, group, period, number of valence electrons, and number of shells with electrons. • Using a periodic table, correctly identify and/or name binary ionic compounds, binary covalent compounds, and compounds with polyatomic ions. • From a chemical equation, correctly identify the type of reaction represented as combination, decomposition, single-replacement, double-replacement, or hydrocarbon combustion. • Determine the mass in grams of a given number of moles of atoms or molecules.
ADHE ACTS INFORMATION FOR THIS COURSE (IF APPROPRIATE)	
<i>ACTS Course number:</i>	<i>PHSC 1004 (when taken with PHSC 1021)</i>
<i>Copy the ACTS course objectives and learning outcomes:</i>	<p>The student will 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 • Force and motion • Work and energy • Temperature and heat

- Electricity and magnetism
 - Chemical elements
 - Chemical bonding
 - Chemical reactions and mole concept
- May include other topics in physical science, including but not limited to:
- Astronomy
 - Waves
 - Earth science
 - Light and optics
 - Atomic and nuclear physics

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 students are introduced to the scientific principles governing the physical world. The students then practice applying the principles to situations and using scientific reasoning to make predictions or describe the outcomes.