

COURSE OUTLINE

PHYS-115 **Introduction to Physical Science Lab** 1 Semester Hour

HOWARD COMMUNITY COLLEGE

Description

PHYS-115 is the laboratory option of PHYS-105, Introduction to Physical Science. In this course, students will develop skill with equipment, laboratory techniques and procedures, plus laboratory investigative skills to solve physics and chemistry-related problems. The lab emphasis is on the application of basic physical science principles in studying and solving practical problems plus operation of basic equipment, e.g., motors, etc. The use of mathematics is held to a minimum. Prerequisite: Eligible to enroll in MATH-070. Pre- or Co-requisite: PHYS-105. (3 hours lab)

Overall Course Objectives

Upon completion of this course, the student will be able to:

1. Apply basic principles of physics and chemistry to a laboratory situation and understanding of the operation of basic equipment.
2. Apply simple mathematical equations to solve elementary physical science-related lab problems.
3. Develop skill in performing elementary physical science experiments to obtain satisfactory results and conclusions.
4. Operate correctly each piece of laboratory equipment.
5. Observe all safety regulations in the laboratory.
6. Demonstrate problem-solving skills and apply to identifying unknowns as well as correctly answering application questions.
7. Utilize a microcomputer for collection and analysis of lab data using probeware for temperature, sound, motion, etc.
8. Use a microcomputer for simulation and problem/concept drill.

Major Topics

1. Using the Metric System and Graphing Techniques
2. Detecting Accelerated Motion and Newton's Laws
3. Uniform and Changing Motion
4. Friction, Work and Energy
5. Introduction to Heat and Temperature
6. Gas Laws
7. Introduction to Waves and Sound
8. Static Electricity
9. Investigating Electric Current, Circuits, and Conduction
10. Magnetism, Electromagnets, Meters and Generators
11. Mirrors, Reflection and Thin Lenses
12. Using Eye Model plus Laser Principles and Demos of Its Use
13. Characteristics of Radiation
14. Percent Oxygen in Air and Molecular Models

Course Requirements

Grading/exams: Grading procedures will be determined by the individual faculty member but will include the following:

Final grades will be calculated on the basis of lab attendance and active participation, use of equipment, lab quizzes, lab unknowns and completed lab reports.

Other Course Information

This course, together with PHYS-105, is a Science core course. This course is a Science elective and an Arts and Sciences elective.