



PHYS 2015

Division: Natural Science and Mathematics

Department: Physics

Course: PHYS 2015

Title: College Physics I Lab

Catalog Description:

PHYS 2015 is the laboratory experience to accompany PHYS 2010. Students will learn techniques of measurement and data analysis. They will learn to communicate scientific results effectively in writing. Principles from the lecture course (PHYS 2010) will be illustrated and experiments confirming class results will be performed.

General Education Requirements: N/A

Semesters Offered: Fall

Credit/Time Requirement: Credit: 1; Lecture: 0; Lab: 2

Clock/Hour Requirements: 0

Offered for Non-Credit: No

Prerequisites: College Algebra and Trigonometry

Corequisites: PHYS 2010

Justification:

This course is a necessary component of the curriculum for pre-medical, pre-dental, pre-pharmacy, and other biological science majors. It is fully transferable to all higher education institutions in the state of Utah (same course number at all institutions).

Student Learning Outcomes:

Students will know the important scientific laws and principles, such as Newton's Laws. Students will also understand that science is a process to gain knowledge.

Students will be able to assemble equipment needed for an experiment, make good measurements, take good data, and analyze the data to confirm scientific principles.

Students will believe that the physical world is interesting, and that science is a valuable way to understand it.

Content:

Students perform a series of experiments about measurements, significant figures, resultant forces, Newton's Laws, work and energy, momentum, circular motion, torque, densities, Archimedes Principle, specific heat, heat of fusion, and the mechanical equivalent of heat.

General Education Outcomes:

6) Apply computational skills to a variety of contexts.

Students analyze the numerical data in their lab write-up each week. They present results in graphical and tabular form. The students also use graphics calculators and other computational tools to aid in their solutions of laboratory physics exercises.

7) Apply scientific reasoning to a variety of contexts.

Students must reason scientifically to make the equipment work and to understand the data they collect. The laboratory write-up must communicate effectively and in a logical manner the scientific reasoning that leads to the conclusions of the experiment.

Key Performance Indicators:

Lab reports: 50%-75% of the final grade

Quizzes: 10%-20% of the final grade

Comprehensive final exam: 10%-20% of the final grade

Representative Text and/or Supplies:

Laboratory manual with experiments prepared by the Snow College Physics instructors.

Optimum Class Size: 18

Maximum Class Size: 24

Signatures:

I hereby submit this course syllabus:

Ted Olson, , Professor

I hereby find this course consistent with the goals and resources of the Physics Department:

Ted Olson, , Professor, Chair

I hereby find this course consistent with the goals and resources of the Natural Science and Mathematics Division:

Dan Black, EdD, Associate Professor, Dean

I have discussed the need for library resources related to this class with the person submitting the syllabus:

Lynn Anderson, MLIS, Technical Services Librarian (Main Campus)

Michelle Olsen, MLS, Campus Librarian (Richfield Campus)