

**University of Arkansas - Fort Smith
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General Syllabus

PHYS 2811 College Physics Laboratory

Credit Hours: 1

Lecture Hours: 0

Laboratory Hours: 2

Prerequisite or corequisite: PHYS 2803 College Physics I

Effective: 2018~2019

I. Course Information

A. Catalog Description

Includes basic experiments demonstrating physical principles of mechanics, heat, and wave motion.

II. Student Learning Outcomes

A. Subject Matter

The student who completes this course will be able to:

1. Use certain experimental apparatus proficiently.
2. Express the measurements determined from the instruments.
3. Determine the required quantities from these measurements.
4. Answer questions concerning the concepts demonstrated by the experiments.
5. Write reports that convey the content and conclusions of experiments.

B. University Learning Outcomes

This course enhances students abilities in the following areas:

Analytical Skills

Critical Thinking Skills: Students will identify a problem or issue and will research, evaluate, and compare information from varying sources in order to evaluate authority, accuracy, recency, and bias relevant to the problems/issues. The student will generate solutions/analysis of problems/issues evaluated and will assess and justify the solutions and/or analysis.

Communication Skills (written and oral)

Students will communicate proficiently. The student will compose coherent documents appropriate to the intended audience and effectively communicate orally in a public setting.

Ethical Decision Making

Students will model ethical decision-making processes. The students will identify ethical dilemmas and affected parties and will apply ethical frameworks to resolve a variety of ethical dilemmas.

Global & Cultural Perspectives

Students will reflect upon cultural differences and their implications for interacting with people from cultures other than their own. The students will demonstrate understanding or application of their discipline in a global environment and will demonstrate how their discipline impacts or is impacted by different cultures.

III. Major Course Topics

- A. Measurement
- B. Addition of Vectors; Equilibrium of a Particle
- C. Uniformly Accelerated Motion; The Atwood Machine
- D. Equilibrium of a Rigid Body
- E. Friction
- F. The Ballistics Pendulum
- G. Uniform Circular Motion
- H. Rotational Motion
- I. Young's Modulus
- J. Simple Harmonic Motion
- K. Standing Waves in Strings
- L. Resonance of Air Columns
- M. Coefficient of Linear Expansion
- N. Specific Heat and Calorimetry
- O. Heat of Fusion