

# ***Physics 3870: Intermediate Laboratory***

## ***Fall 2017 Syllabus***

### **Instructors**

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### **Office Hours**

During lab time, MW 11:30-2:30, or by appointment (Friday 11:30-2:30 is a good time too)

### **Class Meetings**

Class will meet in SER 132 at 11:30 Monday and Wednesday for approximately half an hour. Lab experiments will be carried out in SER 109, 132, and 138. The instructors will be available in those rooms or their offices until 2:30 on Monday and Wednesday to assist with assignments.

### **Class Web Site**

Course materials, assignments, and notifications will be distributed via the Canvas system.

### **Prerequisites**

Students are expected to have taken and to be familiar with the content of ***General Physics*** (PHYS 2210 and 2220), ***Introduction to Modern Physics*** (PHYS 2710), ***Introduction to Computer Methods in Physics*** (PHYS 2500).

### **Objectives**

During this semester, particular emphasis is placed on: (1) experimental and analytic skills including experimental techniques, data acquisition, data analysis, and error analysis; (2) developing collaborative learning skills through work with a lab partner; and (3) improving written and oral communication skills for technical applications.

### **Texts**

J. R. Taylor, *An Introduction to Error Analysis*, 2nd ed. (Univ. Science Books, Mill Valley, CA, 1997). **REQUIRED**

### **Notebook**

A bound Lab Notebook is required. All manually-recorded data, notes, calculations and scratch work must be kept in the notebook. You may also use a computer notebook program such as Onenote or Evernote to collect and organize computer data.

**NO EXPERIMENT WILL BE ACCEPTED UNLESS IT IS RECORDED IN A NOTEBOOK**

## Attendance

Students are expected to attend the 11:30-12:00 segment of each class. This segment will be used for short lectures, problem-solving, and status reports. Attendance and participation is part of the course grade, so avoid scheduling other activities during this time.

## Assignments

The first part of the semester will focus on simple lab exercises and homework based on lectures and the textbook. Students will select lab partners and will choose three experiments to work on for the remainder of the semester. Partners are encouraged to look over the given list of experiments early on to agree upon ones they would both like to do.

Experiments are designed to take about eight hours each for data collection by a team of two or three lab partners. The first two experiments will require formal written reports. While collaboration on papers is encouraged, **each student is required to write and turn in their own lab report**. The final experiment will be reported in an oral presentation prepared and presented jointly by the lab partners. Details on the oral presentation will be given later in the semester.

Written reports will be prepared in conjunction with the [Science Writing Center](#). Students are encouraged to seek their assistance with the reports and other writing required for this class.

## Additional Information

**Disability Resource Center:** USU welcomes students with disabilities. If you have, or suspect you may have, a physical, mental health, or learning disability that may require accommodations in this course, please contact the Disability Resource Center (DRC) as early in the semester as possible (University Inn # 101, 435-797-2444, [drc@usu.edu](mailto:drc@usu.edu)). All disability related accommodations must be approved by the DRC. Once approved, the DRC will coordinate with faculty to provide accommodations.

**Academic Integrity:** Students are expected to adhere to USU Policy concerning [Academic Honesty and Integrity](#) which defines cheating, falsification, and plagiarism. Be sure that any information that you include from other sources, including textbooks and web pages, is clearly identified and properly cited.

**Class Fee:** A \$40 fee per semester is charged for this class to help cover the expenses for expendable supplies and computer usage. Please be aware that the equipment used in this lab was acquired over many years, is very expensive, and can take months or years to repair or replace. Please treat it with appropriate care and respect.