

Physics 196 - Fall 2018 Laboratory Section Syllabus

Introduction

The laboratory in general physics has several purposes:

- It provides you with an opportunity for better understanding of the material covered in the classroom.
- It familiarizes you with the scientific process.
- It gives you practical experience in making experimental measurements and evaluating the results thereof.

The scientific approach to problems has many applications outside of the general physics laboratory; the techniques learned will help you make observations and record them accurately, handle new equipment, and solve problems.

Required Materials

I will post an electronic copy of the current lab on the course website. You will be expected to bring to each laboratory class the following materials: the current experiment (in paper or electronic form), the textbook (in paper or electronic form), a scientific calculator, paper, and a pen or pencil.

A list of the major equipment is given with each experiment. (The list does not include the items listed above.) You should make sure that you have all of the items before beginning the experiment. Sometimes the items will be on the lab bench, and sometimes they will be stored in drawers and cabinets located in the lab room. Either way, it is your responsibility to ensure that you have all of the necessary equipment. You are expected to return the equipment to the place from which you got it. You are also responsible for returning the equipment in the same condition in which you received it.

Coats, backpacks, and other items should not be on the laboratory desk or on the floor. There is a place to cabinet near the door for storing such items.

Procedure

Always read the experiment before coming to class!!! The instructor may discuss the nature and purpose of the experiment, the apparatus, or the procedure to be followed, at the beginning of class; he will not, however, read the experiment to you. As the course progresses, he may not spend any time on preliminary discussions. Unless you have read the experiment carefully, you may not be able to complete the lab in the allotted time.

Safety

To maintain a safe working environment (for you and the equipment), please LISTEN and FOLLOW directions. Many of the experiments will involve electrical equipment. ASK ME if you do not understand something. TURN OFF your equipment when you come to get me to ask me about something that is not working. STOP, TURN OFF THE POWER, AND THINK if you blow a fuse or trip a circuit breaker on your equipment. There was a reason the fuse blew or circuit breaker tripped.

Lab Reports

There will be two basic types of lab in this class: investigatory labs and experiential labs. Investigatory labs will be labs that emphasize the investigation of nature. You will be asked a series of questions and provided with a set of equipment with which to answer the questions. Unless otherwise noted, there will be no lab reports due for these labs, but you will have to turn in the answers to the questions. Most of the labs will be experiential labs. Experiential labs are designed to give you experience in taking various kinds of measurements and manipulating the results. The lab reports for these labs will, generally, consist of a data sheet and the answers to some questions.

Most lab reports will be due at the beginning of the lab period one week after the lab period in which the data is taken.

(Turn Over)

Lab Notebook

I do not require you to keep a lab notebook in this course. However, I encourage you to do so. The lab notes will serve as a technical journal of what you have done in the lab. Do not record lecture notes or homework assignments on notes pages (although you may wish to copy pertinent information from a lecture or handout for reference in the lab). Learning to keep a good lab notebook now will help in the Electronics and Advanced Lab courses where you *will* be required to keep a lab notebook. You may, in fact, use your lab notebook from this class in those courses. Use the following rules for keeping records:

- Write neatly - your notebook must be readable by others. Write concisely - avoid large printing/writing, as this will make your information more spread out and less easy to review. But do not write so small as to make your writing unreadable. It is not necessary to have flawless notes! Scratch-outs are fine, as are abbreviations and side notes and even late insertions (just be sure to date a later entry).
- Draw a diagram of the experiment and/or circuit; they should be simple, but with enough detail that you could repeat the entire process with only the lab notes.
- Record changes you make, and results of measurements. Write questions you have and concerns about the results. Make simple tables and/or graphs of the results. They need not be final results and graphs are certainly “rough”.
- Always provide enough detail that you could repeat the entire process with only the lab notes as source. Remember that there may be several days between lab sessions, so you might want to write a summary of what has been done and what needs to be done for the next time you work in the lab.

Disclaimer

The previous instructions may change, depending on the experiment. **Any changes made by the instructor will override anything written here.** If you have any questions ask your instructor, that’s what he’s there for.