

Lab Policies and Generalities

Please go to the course website which is linked from the physics department webpage undergraduate courses, and look through the links. This is where the labs will be posted for you to prepare and review. There are also a lot of informative and interesting Applets and web pages on various acoustical subjects linked under "SUPPLEMENTARY MATERIAL". Check them out if you are interested.

At the beginning of each lab turn on the computers if they are off and select "student" when prompted. When the lab is done turn off all electronic equipment including the computer, and make sure all apparatus is secure (e.g. nothing hanging off the table about to fall and break).

Please don't print the lab manuals in the lab or from home. The lab instructor will provide hand in sheets for you to submit at the end of the lab period. The lab manuals will be accessible on the computers in the lab. The two take home labs can be printed from home or from one of the many on-campus computing facilities.

Please read the lab manuals online before you come to lab. Some of the labs take the full amount of time, and you will not be able to successfully complete them if you don't know what they entail before you begin.

Graphs must however be printed in the lab and completed with the software installed on the lab computers (Graphical Analysis 3 in lab softwares folder on Desktop).

You can ensure that you get a good grade by following all directions in the lab manual, and those communicated by the TA during the lab. You should always write neatly and cogently. If one member of the group has better penmanship or is more eloquent let them write-up the hand in sheet. Include units for full credit.

Try to work in groups of no more than two people per set up. Submit one hand in sheet per group, with both names on the sheet. If there are not enough set-ups for all groups to be pairs, then you can form groups of three. Also, if we have an odd number of people in the lab and no one prefers to work alone, we can have one group of three. All set-ups save one should be utilized. Keep one set-up or table unoccupied so that it can be used as a backup if equipment fails.

Always explain results that don't make sense or don't agree with the expected outcome and conjecture plausibly about the source of the error. This will get you partial credit and often full credit in spite of measurement errors or equipment deficiencies. Don't explain faulty data with nebulous phrases like "human error".

Not all labs will be graded with a fine tooth comb. The point is that you got reasonable data and interpreted it insightfully in the questions. For some labs randomly chosen the TA will go

through the hand in sheets in detail though, so stay on your toes. The most important thing is to show up and stay until the lab is adequately completed (or until the end of the period).

Missing the lab is strongly discouraged. However, if you have a legitimate excuse there will be two sessions during which you can make up one missed lab. These will coincide with the exam review sessions and are listed on the website. Any further absences will result in a 0 for that lab.

If we have cancellations due to snow, the labs will all be shifted back one week and the review/make up sessions will be abandoned. This should make you even more wary about missing a lab, because you are not guaranteed any make ups. If the weather is good and the review sessions are held, then you may have the opportunity.

Two of the labs will be completed from home. They involve internet accessible software or mp3 files. One requires headphones. Thus you must have a computer, internet connection and headphones if you are to complete these labs. Computers with internet connections are everywhere on campus. Ask if you cannot locate one. If you don't own or can't borrow headphones, please ask and the lab will loan you a set for the week of that lab.

Ask if you have questions about anything. If you are having problems you shouldn't assume that the TA can read your mind. Sometimes the TA is too busy with helping other students or fixing equipment. If so, wait and approach them when they have a second.

Graphing Standards

In this lab course you will be making many graphs. This is a powerful technique in displaying and comprehending experimental results. You will be evaluated on your graphical representation of data. So, keep in mind the following definitions and techniques for two dimensional graphs:

A) The quantity that can be changed is called the independent variable which is normally plotted on the horizontal axis called the abscissa. This is also called the x-axis.

B) The quantity that changes because the independent variable changed is the dependent variable which is usually plotted on the vertical y-axis called the ordinate.

C) The origin is where the abscissa and ordinate are both zero. Some graphs do not plot the origin because the information is better portrayed without it. Remember that there is an artistic aspect to graphs: there are several ways to maximize the portrayal of information.

D) All graphs must have a title. Different sets of data can be plotted, but they must be identified with symbols, different line-types, etc. A legend defines these data sets.

E) Measurements taken from graphs must be shown. Superpose your measurement lines and identify the parameters and measured values.

F) The axes must be labeled. The numerals should be plotted at several intervals without creating a confusing, congested mess. Numbers less than zero should be preceded by a zero: the decimal point should not be first. Any scale (multiplier) must be shown.