

Instructions for the beginning of lab

- Lab groups must be 2 or 3 students. This rule is written in stone.
- The lab manual will be handed out during the course of the semester. It is also available on the computers in the physics lab. Students are not allowed to print out any of the lab manual on the printers in the physics lab.
- Each student must have a lab notebook. It must be bound graph paper. Send students to the bookstore if they don't have one. The students must not use pencil, and errors have to be stricken correctly. Discuss the motivation for the notebook rules. Remind students that the instructor must sign and date the notebook before they leave the class.
- In the lab reports, the first sections are done as a group, and everyone must write their own conclusion. The conclusion is supposed to be quantitative and substantial. The questions in the text of the manual should be discussed in the lab report (give example). You should explain to the students exactly what you are expecting in the write-ups.

Information for the Instructor

- I generally have the students read the first sections on their own and comment on a few items:
 - Point out the importance of not dropping units, even in the middle of a numerical calculation.
 - Discuss an example of statistical versus systematic errors.
 - If they think they have a blunder, they should ask the instructor. Warn against pruning their data until nothing is left. If they throw away a point, they should note this in their notebook.
 - Discuss whether a measurement agrees with a given value.
- When the students get to Section 1.4, discuss with the class the importance of independent measurements.
- Explain why a small amplitude for the pendulum is appropriate.
- At the end of the lab, the stop watches should be collected and stored in the “stopwatch” drawer. They tend to walk away.
- The computers use an X-windows user interface. If you are not familiar with this, you should try it out before the lab period.

- A common error reads:

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***** You are already running another *****  
*****      copy of this program!      *****
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This means that there is already, somewhere on the computer, another copy of the physics program running.

- There is a cheat in this lab: We calculate the standard deviation for individual measurements. However, we compare the mean value of our measurements with a given value. In this case, we the appropriate error would be the standard deviation of the mean.
- I am hoping to continue improving the lab manual, etc. Please tell me about any mistakes in the lab manual or computer program that you find, so I can make corrections.