General Physics I and II Laboratory

Laboratory Essentials

In order to make the laboratory experience a positive one for you and all of your classmates, please keep the following in mind:

* No food or drink in the laboratory. Leave your lab station as you found it.
* Save all of your computer data files in your file space. Take your data with you! Make a backup copy of your data on a floppy disk. You can access both Logger Pro and Graphical Analysis on the MC network for data analysis outside of the lab. This will be important for printing out your graphs.
* All graphs should be computer generated. It's fine if you need to "rough out" some data in your lab notebook by sketching a graph, but you will need to paste in a computer generated one for your final copy.
* Please keep the lab notebooks in the lab as much as possible. You can access the lab at any time by calling security. If you need to briefly take your notebook with you for some further work, that's fine, but try to keep them in the lab as much as possible. Labs must remain in the laboratory every Tuesday evening and over the weekends.
* All measurements should include uncertainty estimates and proper units. If needed, use the partial derivatives method for all uncertainty propagation through calculations.
* This week's lab must be finished by next week's laboratory meeting. Any unfinished labs will be grades "as is" for work completed up to that deadline with appropriate point deductions. Labs will be graded according to the rubric posted in the lab.

The Laboratory Notebook

Be brief, yet complete! Record everything in your notebook (including any data file names and any bad data or mistakes!). Your notebook should describe the process that you undergo in your studies - *i.e.*, it should provide narrative, include sketches/printouts of all graphs, and discuss conclusions that you draw from your results. Clearly define all of your variables and describe your work in a concise, logical, & chronological format. All graphs should be in proper form. All laboratory experiment writeups should begin with a brief outline of the purpose and procedure and end with a concise and informative conclusion.

Show all measurements with proper units and uncertainty estimates. Show all uncertainty calculations, whether by partial derivatives method or deviation from the mean. Be aware of significant figures in the results of any calculations.

Conclusions should be brief and complete. A good conclusion will always recap the results, including uncertainties, and include a discussion of how the uncertainties relate to your expectations. None of the mathematical models that we will use will be "perfect" or complete! Spend some time in thought about the effects of neglected variables on your results and discuss them in your conclusions!

The Laboratory Paper

Any laboratory that you do this term can be used for the Laboratory Paper, unless stated otherwise for a given lab (*e.g.*, the Motion Graphs lab first semester and the Building a Motor lab second semester). The work must be your own. Guidelines for the format are on the course web page. Please peruse a few copies of the *American Journal of Physics* for a feel for the expected format. Please e-mail me a copy of your final paper in addition to the hard copy that you turn in. More details on the formal lab paper can be found on the course web page.