

# Phys 2426, Summer I, 2014

## Suggested Lab Report Outline

Your audience for a lab report is a scientist who wishes to duplicate your results. Therefore, your description of the experiment should be adequate for that purpose. The scientist should be able to set things up the way you did, run the experiment the way you did, and compare his results to yours. This is the essence of an experimental writeup.

1. State the hypothesis which you are testing. This should be specific and measurable.
2. Describe the experimental setup. This should include all diagrams (circuit, P&ID, and physical layout). You are describing all the hardware present in the experimental equipment. This should include computers, calculators, cameras, coffee, etc. Include photographs of the setup whenever possible, with labels (“Call-outs”) for important components. Also use a few sentences to explain this setup. As you are able, include a discussion of how the experimental design eliminates variables in which you are not interested.
3. Describe/list any software you used, whether COTS (commercial off-the-shelf) such as Microsoft Excel, or custom-made. Please do not include the software you used to write up the lab report.
4. Describe any interactions between the hardware and the software.
5. Describe your experimental procedure in detail, step-by-step. That is, describe the actions you took.
6. Present the results of your experiment. This should include some representation of the data you obtained, such as an  $xy$  scatter plot in Excel. **WARNING:** all plots, and I mean **ALL** plots, should have the following:
  - a. Labeled axes (what variable is plotted on that axis)
  - b. Units on both axes (am I looking at meters or feet for a distance, e.g.)
  - c. Scale on both axes (where is the origin, and what does a tick mark represent?)

**Any graph lacking any of these features will be an automatic 5 points off your lab report.**
7. Analyze the results of the experiment. Make sure to analyze possible sources of error (input from variables in which you are not interested), and whether or not they are significant.
8. Conclude whether the experiment supported the hypothesis or not.