

# Checklist for Lab Notebooks

2009 Revision

## In Lab

- Be sure to include a brief summary statement at the beginning of each part about what you are trying to accomplish in that section. Why are you doing it?
- Describe how you made measurements.
- Include in your notebook those things that are important / necessary to be included. Do not include trivial details.
- Use and state uncertainties for all measurements, and make clear how uncertainties were obtained.
- Do simple calculations / analyses as they arise during the lab. Don't save it all until the end as this will aid you in finding mistakes immediately. If the analysis is more lengthy, then reference the fact that it will be included later in the notebook (include a page reference in your notebook once you have completed it).
- Graphs/diagrams should have captions that allow them to stand on their own: i.e. they should contain enough info to allow the reader to correctly identify their significance. No graph / diagram titles are necessary.
- The caption to a graph or printout generated on the computer should clearly give the filename of the data or VI file being printed (including the directory path).
- Include settings for unusual or non-standard instruments. If using a VI or other info previously discussed in the lab notebook, then provide a page reference.
- Include at least one graph / example of raw data. Don't just include processed data in the notebook.
- Programs must be documented and formatted to be easy to read and understand.

## Post Lab

- ***Documentation of analysis is as important as documentation of in-lab work!***
- Be sure to provide detailed annotation for any Mathcad sheets that you include – include comments what is being done and why, not just a collection of equations.
- For Sigmaplot/Modelfit/Matlab analysis, carefully describe the analysis details (what, if any transformations were made prior to fitting, what errors were used and why. Document the units of the  $X$  and  $Y$  variables, and the fitted parameters)
- ***Think. Internalize.*** What is the main idea of what you are doing? Do you clearly understand what is going on? Does the notebook illustrate that fact? Have you developed any unique insights not included in the lab instructions?
- After conducting your own analysis check your results with your lab partner. If you use the same data then you should have the same results or you should clearly understand why they are different.
- Box important and / or final results.
- Properly cite sources.
- ***Comment on results.*** Do not just state the results - briefly discuss their significance. Are the results expected? Why/why not? If a result is in significant disagreement with an accepted value make a quantitative hypothesis as to why this is the case.
- Don't just include a list of possible errors – back these up with quantitative estimates.
- Be quantitative. Comments like, “the agreement is good / close” are meaningless.
- All “accepted values” must come from up-to-date primary sources (such as the CODATA web site <http://physics.nist.gov/cuu/Constants/>) not textbooks, lab handouts, etc.