Guidelines for Lab Notebooks

One of the most important skills you should acquire in this course is how to keep a laboratory notebook. Your notebook should be a detailed account of your work and thoughts, written as they occur in the lab. The purpose of the notes is to allow an educated stranger (or yourself at some later date) to understand what you did, why you did it and why you interpreted it the way you did, long after you've forgotten. If your notes are good, the reader should have no problem to repeat your work.

To help you hone this skill, your notebook will be graded at the end of each lab period. I will read what you wrote, sign my name to the statement, "Read and understood by", if possible, and award you 1 point. If I can not honestly sign my name to that statement, you will receive 0 points. I may annotate your book with comments to help you improve your notetaking when appropriate and you are always welcome to ask for further clarification.

Bear in mind, however, that this daily check is more for clarity, both visual and conceptual, than for content. It is simply not possible to check all your assertions and calculations so frequently. But the accuracy of your content is crucial. At the end of an experiment, you will turn in a written report along with your lab notebook. The work described in the report must be documented in your notes, and it will then be checked for correctness.

If you are wondering what to write down in your notebook, don't worry. Always start with the date. The rest will become clear as you work. The recently revised laboratory manuals will help by prompting you to write things as you go along. The following list is a general guide of common sense entries. Exactly what you should write, only you can tell.

1. STATEMENT of INTENT or TITLE
2. DESCRIPTION of the EXPERIMENTAL DESIGN
   (Often a schematic of the apparatus is easier to write and understand than writing out this connected to that, but both work. If the equipment is new to you, you might want to jot something down about how it works. Also, take the time to copy from the manual or check yourself for where and how much error comes in.)
3. OBSERVATIONS
   (Noting things you tried that didn't work can help you piece together the big picture objectively… one of the most common ways of unconsciously biasing your results is to take notes only when things "make sense".)
4. MEASUREMENTS
   (Don't forget to put every number in its context by giving it units and organization. Making tables? Label the columns. Plotting a graph? Give it a title, maybe a legend, and axis labels.)
5. CALCULATIONS
   (Changing units? Plugging into an equation? Propagating error? It's okay to use your notebook as a scratch pad, but cross out mistakes and put a nice bold box around the results to help a reader - even yourself - to follow your work at a later date.)
6. CONCLUSIONS
   (What do you know now that you didn't know when you started? Why do you know it? How sure can you be? What could be done better? What could be done based on this work?)
7. WORDS TO THE WISE
   (If something you observed makes no sense to you, make a note to that effect. Write out your questions as they occur. Knowing what you don't know is essential to good science. What's more, just phrasing your questions well enough to write them down can help you figure out where to start. Remember, your notebook is a log of events and thoughts as they occur – it is not reserved for neat answers. Later, when you have a clear idea of what is going on, you can dedicate a few pages to laying it down neatly, if you like.