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ch216sp12syllabus: Laboratory Notebook

The **laboratory notebook** is a detailed record of each experiment. Some portions of laboratory notes will be written prior to the start of lab (pre-lab portion) and some should be written during lab. The notebook must have duplicate carbon pages that can be handed in and notes must be written in pen. View example lab notebook pages by clicking [page 1](#) & [page 2](#).

General Guidelines:

- Do not skip pages or backfill data.
- Always bring the notebook with to the chemical balance or anywhere that you may be recording data.
- Record any and all useful information including observations such as color changes, temperature changes, precipitation etc..
- Take notes on what you have done yourself not what it says in the lab manual.
- A single line should be drawn through any mistakes.

The **pre-lab portion** of your notebook is to be completed prior to lab before each new experiment and should include:

- The appropriate *title, name, data, section, experiment number and names of groups members* (if it is a group experiment) should be written at the top of the page. The title should be descriptive and give the reader a clear idea about the purpose of the experiment.
- A brief *introduction* indicating the objective, general concepts and techniques.
- Reaction mechanisms for any of the main reactions used in the experiment should be drawn using the curved arrow notation.
- A *table of reagents* should include, for each key reagent or product, compound name or structure, molecular weight, number of mole equivalents, number of moles (or mmol), amount (g or mL), physical constants (melting point, boiling point, density if it is a liquid at room temperature, and concentration if it is given in solution), and hazardous information. Solvents should be included in the table with boiling point, density, and hazards information. Physical constants can be obtained using an [online chemical database](#).
- *Materials and methods* should include a flow chart of the experimental steps and should be written in your own words and not copied directly from the lab manual.
- All *calculations* should be included in the lab notebook and some should be done ahead of time for the pre-lab. These include theoretical yield and those necessary to complete the table of reagents.

Portions to be completed during lab include:

- *Procedure & Observations section*. In this section you should record the procedure in your own words as you perform it along with any notes on observations. It is useful to organize the procedure section by dividing the page into half vertically. On the left hand side of the page write the procedure while leaving the right hand half open for corresponding observations. Record masses and volumes as accurately as possible. If the procedure called for 50 mgs and you used 54 mgs, this should be reported in your laboratory notebook and in your formal lab report.
- *Results & Analysis*. This section should include the results of characterization including TLC, m.p., spectra, yield etc. along with analysis and discussion of the results.
- *Conclusion*. Very briefly describe the outcome of the experiment and what the data told you about the experiment. For instance, was the synthesis successful? Was your product pure and in what yield? What could be done next time to improve the experiment. If the synthesis didn't work, explain why you think it didn't.
- Include the answers to any post-lab questions indicated in the experimental procedure
- Spectra should be attached, clearly analyzed, and labeled. Do not attach spectra which you haven't analyzed or discussed in your Results & Analysis section.