Guidelines for the Laboratory Notebook in CHEM 304

The requirements for the CHEM 304 Laboratory Notebook are shown below. Failure to follow these guidelines will result in a lower grade. Two types of experiments are carried out in CHEM 304: Technique experiments (indicated on the Schedule with a "T") and reaction experiments (indicated on the Schedule with an "R"). The Notebook requirements for each type of experiment are slightly different. These differences are highlighted where necessary in the guidelines for each section below.

Notebook Prelab sections (Date/Exp No/Title, Purpose/Reaction, Physical Data/Safety, and Procedure) are due at the beginning of the prelab briefing on the day of the experiment. Notebook Inlab section is due during the the next lab period following completion of the lab exercise. Due dates are shown on the Schedule (available at the course webpage chem.winthrop.edu).

Entries in the notebook must be made IN INK, and the notebook need not be pristine. Record everything directly into the notebook, DO NOT write data on separate sheets of paper for later transcription. If you make a mistake, cross it out with one line and write in the correction next to the mistake. **If you do not record everything directly into your notebook, you will receive a zero for the notebook portion of your portfolio.** Please refer to the sample reports for guidance. ***NB: For any number recorded without its appropriate unit, there will be 1 point penalty per occurrence.***

Notebook Prelab Sections

Date/Exp No/Title

- Enter a date and descriptive title on the first page. An abbreviated title must appear on subsequent pages.
- Enter an Experiment Number in the format XXX-YY where XXX are your initials and YY is the number of the page on which the experiment begins. The Experiment Number must appear on subsequent pages of the notebook record.

Purpose/Reaction

- Write a short (one sentence) description of the purpose and goals of the experiment.
- For reaction experiments, include a reaction scheme in this section.

Physical Data/Safety

- Create a table of physical constants for the chemicals encountered in the experiment (reagents, auxiliaries, products). The physical data usually needed for each chemical depends on the role of the substance. Examples are given in the table below:

Role	Information required
Reactant	Name, structure, formula, mol. wt., mp, bp, density
Catalyst	Name, structure, formula, mol. wt., mp, bp, density
Product	Name, structure, formula, mol. wt., mp, bp, density
Solvent	Name, structure, formula, mp, bp, density
Aqueous auxiliary (i. e. 10% NaOH, saturated $NaHCO_3$)	Name, formula, concentration
Drying agents (i.e. sodium sulfate, calcium chloride)	Name, formula
Adsorbent (i.e. alumina, silica gel)	Name, formula
Other	Name, formula (if available)

- Summarize the safety hazards of each substance encountered in the experiment. Usually, a summary of the hazards will be found in Section 2 of the MSDS. Pay attention to these hazards.
- Record safety concerns with any operations to be performed.

Procedure

- Summarize the procedure in a sequentially numbered series of steps. The notebook procedure does not need to be written in complete sentences, but should provide enough information for you to carry out the experiment without the lab handout. Do not copy the procedure directly from the lab handout.
- The first time you perform a technique such as vacuum filtration, you must include a description of how to assemble the apparatus and how to conduct the filtration. In later experiments, it will be necessary only to say that the mixture was filtered.

Notebook Inlab Section

Data/Observations

- This section begins on a new page in the notebook.
- Entries in this section must reference the step number in the procedure (above).
- Record any data (masses, temperatures, etc.) you measured, including units. Record any significant observations (color change, evolution of gas, precipitation, etc.).
- Record any changes to the procedure in this section (including actual amounts of substances used).
- Record all analytical data associated with your product (mp, bp, spectral data, etc.)
- Record all data and observations directly into the notebook. DO NOT write data on separate sheets of paper for later transcription into the notebook.

Calculations

- All calculations you perform (percent yield, conversion of volume to mass, etc.) must be shown *in detail* in this section.

Conclusion

- Finish the experiment by writing a short (one or two sentence) conclusion in your notebook.