

CHEM 1221 and 1223 Scientific Writing Assignment
Spring 2009

**Please note: This handout supersedes the materials in your lab notebook if there are any differences between the two.

OBJECTIVE: To write a formal laboratory report on your data from *Experiment 1*:
CLASSIFICATION

DEADLINE: Friday, March 27 by 5 PM to your lab professor's office (NO EXCEPTIONS!!!)

CRITERIA:

Your paper must thoroughly discuss the topic using 12-point Ariel font, appropriate spacing, one-inch margins on every side of the paper, and left justification. (There is a format example in your lab manual that is very helpful.) Your paper must be 3 to 5 pages in length.

Your paper must include the following sections (see pp. B1-B2 in your lab manual for complete explanations of these):

1. **Objective**
2. **Introduction** (Limit to $\frac{1}{2}$ to $\frac{3}{4}$ page.)
Please include the following:
 - 3 references (Wikipedia is not a valid source.)
 - the theory of bonding including
 1. intramolecular and intermolecular bonding
 2. define each type of bonding and give specific examples
 3. properties and other identifying features
 4. Briefly (two to three sentences) how one would identify a substance.
 - The goal/purpose of the experiment
 - Why is it important to know a substance's bonding?
3. **Experimental Methods** (Limit to $\frac{1}{2}$ page. Please make sure you paraphrase and reference appropriately to avoid plagiarism!)
 - Example: To determine the molecular weight of an unknown compound, we followed the procedure outlined in "Experiment 1: Colligative Properties..."³ A summary from reference 3 is included here:
4. **Calculations (For Spring 2009, this section is not needed.)**
 - Please show the important calculations (may include derivations) that were needed to do this experiment.
 1. Little narrative goes in this section except to introduce the equations and their derivations as well as to explain each symbol within the equation.
 - Equations of how you calculated your answers go here. Need only show one sample calculation of each type.
 1. Please use formulas and then fill in with numbers.
 - May type or use Equation Editor.

5. **Results** (Your answers go here in Table format.)
 - All data from Chart goes here.
 - No narrative goes here.
6. **Discussion** (Should be the longest section of your paper.)

An experiment is performed to answer a question(s). Using paragraph, discussion format, include the answers to the following questions in your discussion.

 - How did you determine the crystal type of each known and unknown?
 1. Correlate the crystal type/bonding back to the introduction re-emphasizing what they mean.
 - Some of the substances we used did not exhibit bonding that perfectly matched the characteristics given in the textbook and lab book. Why?
 - What factors contributed to error (both human and instrumental) and how did they contribute to the error?
 - What other questions can you think of?
7. **Conclusions**

Using paragraph, discussion format, include the answers to the following questions in your discussion.

 - Were our techniques good methods to identify the bonding? Why or why not?
 - How would one use this information in the real world?
8. **References** (This is not a separate page by itself. See format example.)

Other helpful information in your lab manual:

<u>Appendix section in lab manual</u>	<u>Section title</u>
B-1	How to Write a Formal Lab Report
B-3.	Example Formal Lab Report
B-10	Example References
B-11	Instructions for Using Microsoft Excel
B-14	Instructions for Using Microsoft Equation Editor
B-15.	Grammar Rules to Follow

Grading:

This paper comprises 10 % of your final grade. Thus, you must do a good job. Hint: Please do NOT wait until the night before to write your lab report. This is a difficult assignment.