

Chem 1411 Guidelines for Pre Lab Exercises and Reports

General Notes on Preparation

- Remember when preparing your laboratory reports that it should be done so that an outside reader can reasonably understand how to perform the experiment and what you learned from it.
- When preparing a handwritten laboratory report, make sure it is legible!
- Proofread for spelling and grammar. Remember that word processor spell-checkers are not very effective for scientific or technical papers. Points may be deducted for abundant spelling and grammar mistakes.
- It's recommended that you compile your lab reports soon after completing your experiment while your memory is still fresh.

Pre-Lab Exercises (33 points each)

- Your prelab exercise will be available on my webpage for you to download and complete before class.

Lab Reports

- Weekly reports will require completing only sections III through V listed below.
- You are to submit two formal reports of your choosing during the semester that will require completing all five sections. The formal reports are to be in proper English, typed, 12pt font, and double spaced.

I. Introduction

- List your heading at the top of the every page: *experiment number, experiment title, and your name.*
- *One or two* statements describing the overall objective of the experiment. These statements should answer, "Why are you doing the experiment and what do you hope to learn?"
- Give a brief background of concepts that justify why you are performing the experiment.
- Create a section listing all chemicals that are being used in the experiment.

II. Procedures

Procedure—Briefly outline the procedures to be used in performing the experiment. Do not list each step verbatim; if, for example, you have three or four steps that are all leading to you determining the mass of a benzoic acid sample simply type, "Determine mass of benzoic acid". *Make sure you include all changes/omissions to the written procedure.*

III. Report Form

Report Form—This is the page from your lab manual completely filled out as applicable. If the experiment is from a handout that doesn't have a form, you will need to create a Results section!

Results—You will only have this section if the experiment is from a handout that doesn't include a report form. In this section you should present the data in the most concise, clear format possible. It may include the following:

- Measured masses, volumes, etc. Include tared masses.
- Percent yield, percent error calculations (show work)
- Melting points/boiling points
- Any chemical test results
- Any graphs (with title, labeled axes, etc.)
- *Make this section as organized and neat as possible. Tables are a good idea.*

IV. Discussion and Conclusions

- This is probably the most important section of the lab report. It gives you an opportunity to objectively discuss and analyze the experiment. Some questions you can answer in this section include:
 - (1) Do my results agree with the known value or accepted result in the literature? Cite sources in APA format.
 - (2) Are there any conclusions I can draw from the ease or difficulty of the various steps performed?
 - (3) What went wrong in this experiment and why did it go wrong? *Note: human error is not to be mentioned in your lab report.*
 - (4) How would my mistakes affect the results of the experiment?
 - (5) How can I explain some of the strange results (e.g. yields > 100%) I obtained in this experiment?
 - (6) What changes would I make in the experimental procedure to improve it?
 - (7) What advice would I give to future students performing this experiment?
 - (8) What have you learned about the chemistry in this experiment that is not described in your lecture textbook?
- These are only some possible questions you can answer. It should be clear that this section should not be limited to saying whether or not you liked or enjoyed the experiment. You should feel free to discuss all aspects of the experiment.

V. Works Cited

- Whenever you obtain reference data of some sort, you must cite the reference. Use APA format for all works cited/ references. See the next page for APA formatting for several types of resources.

Books:

Author, A. A. (1996). *Title of book*. City: Publisher.

Author, A. A., & Author, B. B. (1996). *Title of book: Subtitle of book* (edition). City, ST: Publisher.

Author, A. A., Author, B. B., & Author, C. C. (1996). *Title of book: Vol. 1. Title of series*. City, Country: Publisher.

Journals:

Author, A. A. (1996). Title of journal article. *Title of journal, volume number, first page-last page*.

Author, A. A., & Author, B. B. (1996). Title of journal article: Subtitle of journal article. *Title of journal, volume number, first page-last page*.

Author, A. A., Author, B. B., & Author, C. C. (1996). Title of journal article. *Title of journal: Subtitle of journal, volume number* (issue number), first page-last page.

Internet:

Author, A. A. (1996). Title of electronic text [E-text type]. Location of document

Author, A. A., & Author, B. B. (1996). Title of electronic journal article. Title of electronic journal [On-line serial], Volume number (Issue number). Email address and request message

Unpublished Material:

Author, A. A. (1996). *Title of paper or manuscript*. Unpublished manuscript.

Author, A. A., & Author, B. B. (1996). *Title of paper: Subtitle of paper*. Manuscript submitted for publication.

Author, A. A., Author, B. B., & Author, C. C. (1996). [Topic of study or untitled work]. Unpublished raw data.

What to Turn In

Your completed lab reports, stapled together, are due the meeting following the completion of an experiment. The report should be compiled in the order set forth in the preceding pages. If you are using a hardbound laboratory notebook to write up your weekly reports, you should turn in the carbon copy pages, NOT the originals. Remember, you are allowed to computer-generate your weekly reports (required on formal reports), but **I will not accept reports done on loose-leaf or spiral notebook paper.**