ABOUT THE PURPOSE OF LAB REPORTS

Part of becoming a scientist is learning to communicate science. In the Chem 51L classes you will be learning how to write like a scientist. This type of writing is different than writing you might do for a humanities or social sciences class. The Report Scaffolds that were provided in Chem 51LB got you started in the process of learning this new style of writing. (If you are new to Chem 51L classes, you can still access all of the assignments from Chem 51LB.) A good way to familiarize yourself with how scientists write is to read scientific writing. Try reading a journal article from a research journal (accessible through the UCI library website). Don’t worry about understanding all of the details. Just pay attention to HOW the article is written.

An additional reason that you are required to write in Chem 51L classes is to help you learn the topics we are studying more deeply. The process of writing about a topic helps your brain process and learn the information in ways that just reading or doing practice problems does not. Copying or slightly rewording someone else’s writing (a friend’s report, from a website, from the experiment handout, etc.) is a violation of the academic honesty policy (see class syllabus) and ensures that you are not learning the material as well as you would be if you wrote your own report. The appropriate way to use resources when writing a report or answering scaffold questions is to take some notes (key points only, not whole sentences!) for yourself on what you need to write about, go do something completely unrelated for a while, and then come back to your notes and use only the notes to help you write. Following this process will help to force you to explain the concepts in your own words. This will help to ensure that you are not violating the academic honesty policy and that you are maximizing your learning.

POST-LAB REPORT FORMAT

MUST BE TYPED! Times New Roman; 12; double spaced; 3 pages unless a specific alternative page length is given; use 3rd person passive voice only (For example, “We dissolved the white solid in 10 mL of hot water,” should be written as, “The white solid was dissolved in 10 mL of hot water.”). Include your name, student ID number, and lab course code. This format is NOT OPTIONAL and TA’s will remove points for failure to follow these instructions.

Introduction: A short paragraph stating the goal of the current experiment and the general methods/procedures that will be used to complete the goal and analyze the results. (For example, “The purpose of this experiment is to synthesize trans-stilbene using a Wittig reaction. The identity and purity of the product will be evaluated using melting point experiments.”)

Theory: One or more paragraphs describing the theory behind the experiment. Usually, that will be an explanation of the chemistry occurring ON THE MOLECULAR LEVEL. In many cases, this will be a brief review of the mechanism of the reaction you are running. This is the part of your report that answers the question “Why is this happening?” Your textbook will prove to be a very useful tool when writing this portion of your report.

Mechanism: Provide the mechanism for the reaction(s) in your experiment. If the experiment does not utilize chemical reactions you may omit this section. There are a few different ways to include drawings in your report. You can 1) leave a blank space and draw by hand, 2) draw by hand on another page, take a picture, and import the picture, or 3) use a chemistry drawing program such as ChemDraw or ChemDoodle. If your mechanism drawing is large you made include it as an appendix to your report rather than embed it in the body of your report.

Results: Depending on the particular experiment, this could be a data table or a sentence. In most cases, you will be exploring techniques, so a data table will be the most appropriate format. Make sure you include all the data you recorded! DO NOT INCLUDE DETAILS FROM THE PROCEDURE. Padding your report length with procedural details will not help your grade and will provide you less room to write what you need. If you are attaching large data tables or spectral data they may be attached at the end of the report and do not count towards your page limit.

Discussion: One or more paragraphs where you analyze your data. What is your percent recovery or percent yield? If you have synthesized a compound, how do you know its identity and purity? What proof do you have for the latter two? How do your results compare to literature values (melting point, boiling point, spectroscopic
data, etc.)? If you have isolated a compound, how do you know how pure it is? If you did a reactivity trend, you need to tie back the results to the theory and explain why they make sense (or not).

**Sources of Error:** A few sentences on what did or might have gone wrong in the experiment. If your percent recovery or percent yield is low, why may that be? Was there a major side reaction that impeded good results, or was a procedural step not efficient? Focus on the chemistry – AVOID TALKING ABOUT MECHANICAL ERRORS SUCH AS SCRAPING ALL THE SOLID FROM THE SIDES OF THE CONTAINERS OR SPILLING THINGS. Only mention the latter if that was a MAJOR source of error.

The error portion of your report may be a separate section from your discussion or may be interwoven within your discussion. If your TA asks for a specific format, follow the TA’s instructions. Otherwise it is up to you to choose to whether the flow of your report works better with sources of error separate from or within your discussion section.

**Conclusion and Future Experiments:** A short paragraph SUMMARIZING your results and their meaning, summarizing the connection of your results to theory, describing what you think needs to be done in order for this experiment to be complete. Proof of identity and purity are usually issues to consider; how certain are you that the technique you used is 100% accurate; what other technique can you use instead or in addition.

**Appendices:** Attach any supplemental information at the end of your report. These additional items do not count toward your page limit. Examples of appendices include calculations and copies of spectra or graphs obtained in your experiment and needed to support your analysis and discussion of results.

**Turning In Lab Reports:** The Report Scaffolds and Post-Lab Reports will be turned in after the lab section the week after the lab is performed or slightly earlier as determined by your TA. You will need to submit an electronic copy to turnitin.com and, in some cases, a hard copy to your TA at the designated due date.

**Oral Discussion of Results:** Each week a group of students will be assigned to give an oral discussion of results. When you are required to present an oral presentation for an experiment, the same questions should be considered as in the written discussion. You are not, however, required to use the third person passive voice. While the group oral discussions should relay the same information as the written discussion, they should not be recitations of written discussions. The oral presentation should keep the attention of and engage your audience. Being able to relay scientific information effectively is a very important skill for any job that you should begin practicing now. Students chosen to present an oral discussion during a multi-week experiment should discuss the results obtained so far and their plans to complete the experiment.