

THE LAB REPORT

The overall idea of the lab report is to write the report so that someone who has not performed the experiment could understand why you did it (theory), how you did it (techniques and instrumentation), what you observed (data), and your interpretation of the results.

Lab reports will be written in a team. There are two ways you may divide the work.

- 1) One person writes, the other edits. Each writes 2 lab reports.
- 2) One person is writer 1 and the other is writer 2. Edit each other's work. Each person plays each role twice.

Writer 1. Write Introduction, Discussion, and any references used.

Writer 2. Write Abstract, Materials and Methods, Data (Results) and any references used.

Title Page: The title page should contain the title of the experiment, the names and the lab report roles for each lab partner, and the date of submission.

Abstract: The abstract should **concisely state what you did and the results**. The abstract **SHOULD NOT contain theory, methods, or error analysis**. A good abstract contains 1) A statement of purpose or problem, 2) how the problem was approached experimentally (a list of the methods, don't come close to describing the methods), 3) **results**, and 4) **comments on the results** (Were the results what you expected?). It is only a paragraph.

Introduction: The introduction should contain the **background to the molecules and techniques being studied**. It should also include an **explanation of the overall purpose** of the experiment. It includes any figures necessary for explaining the introduction (may not be necessary).

Methods: The Methods should be a summary of the methods you used in the experiment. Each method should be listed separately under its own heading. **Rather than listing every volume, you need to just list final concentrations**. (Points will be deducted for things such as 100 μL of 500 mM of NaCl added to 900 μL of water, instead of 50 mM NaCl.) When giving the method for standard curves, you can just give concentration ranges rather than listing all of the concentrations.

Data (or Results): The data portion is where you give the results of the experiment. Most data can be presented in a table or figure with accompanying text.

Tables: Each table should have a table number, a title providing the reader with information as to what is being presented, and a brief description of experimental parameters relating to the data you will present.

Table headings should appear above the table. Any calculations pertaining to data manipulations in the table should be presented below the table. All tables within the lab report should be presented in an orderly, logical manner so that the reader can easily determine the sequence of events within the experiment. **ALL TABLES MUST BE NEATLY PRESENTED**. (This includes the table being all on one page.) Table titles go above the table.

Figures: In many experiments, a greater understanding of the results is obtained when the data is presented in graphical form. Figures may also be gels, chromatograms, or other raw data. Each figure should have a figure number, **a title providing the reader with information as to what is being presented, and a brief description of experimental parameters relating to the data you will present**. Titles for graphs should appear below the figure. Titles for graphs such as "Protein vs. Fraction Number" are not acceptable; "Protein Profile of Affi-Gel Blue Column" gives the reader a much better understanding what is being presented. Graphs should be presented **NEATLY** using a program such as EXCEL. Both the **x** and **y** axes should be labeled (including correct units.) Figure titles go below the figure.

Note: The figures need to be presented in a logical order related to the presentation of data in a table. i.e. If Fig 1 should be a graphical presentation of the first part of Table 1, while Fig. 2 would be a graphical presentation of the second part of the table. Present all tables and Figures in a well-organized fashion.

Discussion: This is an evaluation of the results of the experiment. Summarize the purpose of the experiment and give the key results. Be sure to hit the highlights from the introduction. **What molecules are you working**

with and what techniques are you using? What was the purpose of the experiment? Did the results match what you expected? If something went wrong and you did not get the expected results, this is where you explain how the results differed from the expected and why you think there was a problem. You should address any questions given in the experiment.

References: You may choose whatever format you like for your citations, i.e. MLA, a particular journal style, etc. Just be consistent.

When editing look for:

1. Writing: Even though this is not an English grammar or composition course, proper sentences and spelling are expected. The editor needs to proofread the work of the writers to be sure that it is a properly written paper. Some things to look out for: **unexplained abbreviations**, **homonyms**, **incomplete sentences**, **sentences that do not make sense**, **repeated sentences**, **volumes (and often masses) anywhere in the lab report (they should almost always be concentrations)**, references to figure or table headings in the text matching their actual #, other grammatical errors, table or figure descriptions not matching the table or figure, etc.

2. Formatting - **Is a figure or table all on one page?** (They don't break over.) Are the labels on the same page as a figure or table? Are the labels for figures and tables in the correct position? Is there a heading at the very end of a page for which the section doesn't start until the next page?

3. Information – Did the writer give enough background to the experiment? Are the conclusions sound? Did the writer leave out any important parts of the experiment?

4. Science – The editor should double check for mistakes in the theory and calculations.

If there are many problems in a section, the editor can send it back to the writer for a re-write.

Due Dates: Rough drafts of lab reports are due in the **Blackboard Group File Exchange** at the **BEGINNING** of the lab period one week following the completion of the experiment. The lab reports should be assembled. You may want to do this in the "Rough Draft Section" of Lab archives. If roughly 80% of the lab report is not written and in the group file exchange by the week after the experiment, **your final lab report grade may be reduced by up to 50%**. This gives you a week to edit the rough draft and get it in tip top condition.

For the first lab report (Protein Quantification), each lab group must schedule an editing session with the professor.

Final drafts of lab reports are due in the Blackboard Assignment for the Group at the **BEGINNING** of the lab period two weeks following the completion of the experiment.

Grading: If one lab partner does not do their fair share (as deemed by the professor and other lab partner) their grade may be reduced on the lab report by **up to 50%** depending on the severity of the offence. If she deems it necessary, the professor may send the lab report back to a group for re-writes. They will have one week from the time it is handed back to rewrite the lab report for a maximum grade of 80%. If the group does not re-write the report, they may receive a **zero** for that report.

LATE LAB REPORTS: Late reports will have points deducted according to the following schedule: 20% of the maximum during the first 24 hours late. 10% of the maximum points for each additional 24 hours late.

FORMATTING AND SUBMISSION REQUIREMENTS

Everything that you turn in should be typed in 11 point Arial font. Justify the paragraphs (this means the text should not be aligned to the left, justify it instead).

Lab reports and Data Analysis Sheets should be turned in electronically **ONLY**. Please submit a Microsoft Word document (not a PDF), unless asked. You will submit your work to **Blackboard**. The file name should include the date, the assignment (don't get descriptive, just use DAS or Lab Report followed by the chronological number), and the last names of the lab partners.

If you are turning in a Data Analysis Sheet, your file name should read:

2012-8-27 DAS 1 (Lee)

If you are turning in a draft of a lab report, your file name should read:

2012-8-27 Lab Report 1 Draft (Lee and Sutherlin)

If it is the final submission of a lab report:

2012-8-27 Lab Report 1 (Lee and Sutherlin)