

Lab Reports: What is generally expected in a lab report?

The purpose of the lab reports is to help you develop critical thinking about the significance of your experiments, as well as to guide you in the process of scientific writing. While it is important that students complete experiments and collect quality data, we will not be grading these reports based solely on how close your results come to the expected theory. We assure you that nobody will be punished for having obtained negative data. However, it is important that you realize why they are negative. We are more concerned with whether or not a report shows that the student understands the theory and methods of the experiments, and whether that student interprets his or her results in an intelligent and thoughtful manner. Obviously, though, there is a middle ground. It is difficult to generate a thoughtful discussion without a critical mass of results.

In this course we will rely heavily on the LabWrite website to help you prepare your lab reports. We will provide extensive feedback on your lab reports, particularly on the first one, and students are encouraged to seek out additional help or discussion with instructors during office hours. Your lab reports will be evaluated according to a standardized grading system that is designed to complement the skills taught by the LabWrite website.

Your lab report will consist of the following elements. Please consult the LabWrite website for specific guidance on developing these sections of your lab report.

1. Title

2. Abstract

State in a single paragraph the point of the laboratory and the major finding(s) from your experiments.

3. Introduction

Briefly review the theory behind the experiments in the report. Include equations to illustrate your points. Descriptions should be in your own words, and you should take pains not to simply reiterate the lab manual.

4. Methods

A concise description of the methods

5. Results

This section should present the body of your experimental findings, including all data figures and tables. Figures and tables *must* have brief legends describing what is being plotted or tabulated. Include enough details to allow the reader to understand the figure without having to read through the main body of the text. In the text, you should describe your findings in a straightforward manner, and leave interpretation for the Discussion section. If measurements or calculations are made, you should describe how. In the past, some students simply listed all the figures in Results. *However, Results are not a simple collection of figures, and you must lead your readers through by briefly describing what you did and why you did it first.*

6. Discussion

The primary purpose of the discussion is to describe the significance of the data. You should address each result in turn, mentioning what the result was, and then providing detailed explanations. Bring in the theory from the introduction to help you provide mechanistic support for your conclusions. In some cases, results might deviate from theory. Here, you should be honest, and describe what you expected based on theory, and then do your best to explain what might be different in the actual experiment. Perhaps there were technical problems during the experiment that might have introduced

complications. In these instances where there is no clear answer, the the “right” answer is a thoughtful discussion that details the possibilities

7. Conclusion

A brief (1 paragraph) statement of what you learned in the lab.

8. References

It is not mandatory to have references. However, you are encouraged to read original papers in the field, which may help your current experiments. Do not list a reference that you did not read.