**Lab report grading standards**

Lab reports are each graded on a scale of 0-100 points, distributed as follows.

**Structure: 0-20 points**

All sections necessary to explain the lab in a logical way should be included. As stated in the Lab Overview handout, the following sections should be present: title, abstract, introduction, theoretical background, experimental procedure (including any re-design or refinements), data (in tabular form or a format that makes sense for that lab), analysis of data including errors, your interpretation of the results, and a conclusion section that reflects on ways to improve the experiment, how well your results agree with known values, why there are deviations, and if you could do the lab again, how you would change it to make better measurements and get an improved result. The exact headings, use of subheadings, etc., are your decision, as long as information is there, and the organization is clear. A reader interested in particular information should be able to find what they are looking for in a logical place.

**Detail: 0-60 points, as below**

All relevant details are present in each section. The purpose and methods of the lab are explained. Tables and graphs display the data and results of analysis in a clear way. A reader can understand how the data was taken, and how it was analyzed. It is clear how the analyzed data supports the conclusions.

**Abstract: 0-10 points**

This gives the “big picture.” The abstract should provide a clear summary of what you did and what the results were. The details of how are not necessary, though a single sentence could describe the overall method.

**Introduction: 0-5 points**

This is where you explain “why.” What unknowns will be found? What new techniques tested? In most cases, this is where you should include some references.

**Theoretical background: 0-5 points**

This is where you provide the theoretical framework that is the foundation for your experiments. Any equations you will use to determine quantities should be discussed here.

**Procedures, methods, setup, data, etc.: 0-10 points**

This section (or sections) gives the information that a reader would need to reproduce your experiment. It doesn’t have to reproduce the lab handout. Sometimes, it may need more detail, sometimes less. You can reference the handout where that is useful.

**Analysis: 0-15 points**

Analysis is key, it is where you “make sense” of the data. That is, in large part, what an experimental scientist does. They take data as a “raw material” and use analysis to make a product: “sense,” that is, a deeper understanding of why nature behaves as it does. It is imperative that this section give a clear explanation of how you “made sense” of your data.

**Discussion: 0-5 point**

Here, you discuss the “sense” you made of the data. What where the results of your measurement (values and precision). Was the method you used successful? What additional experiments could you perform?

**Conclusion: 10 points**

The primary purpose of this section is to explain what was accomplished. In a typical experiment, you say what the results of your measurement were, and you refer back to the introduction to say what this adds to knowledge about your subject.

**Care and professionalism: 0-20 points**

The report is carefully laid out, with fonts, margins, and similar factors chosen so as not to be distracting or difficult to read. Figures and graphs are clear and well labelled. Spelling, punctuation, and grammar are acceptable.

**Overall score:**

By the time the time the points are awarded, the result should reflect this overall scheme.

85-100 points: (Excellent/A)

The report written with great care. It is easy to read, and all sections necessary to describe the lab are present. Each section gives all details necessary for a reader who is not an expert on the lab to understand what was done and why.

65-84 points (Very good/B)

Reasonable care was taken in preparing the report, though there could be some rough spots. All sections necessary to describe the lab are present, but a few details may be missing. The writing is mostly clear. A reader can get a good understanding of the lab but might have a couple questions.

45-64 points (Fair/C)

Some of the report shows care, but other spots look like they may have been rushed or neglected. All sections necessary to describe the lab are present, but there are details missing in many places, or most sections are complete, but one is missing entirely. A reader gets only a partial understanding of the lab and would need to ask for significant additional details to gain a reasonable understanding.

0-44 points (Poor/D or F)

The report looks thrown together carelessly. Many details are missing throughout, or more than one section is missing. A reader gets little idea of the purpose or methods and has no way to judge whether the conclusions are justified.