

GUIDELINES FOR WRITING LAB REPORTS

There is no fixed format for lab reports, as different labs will require different styles and formats. You will have to use your judgment. However, the following points may serve as a guideline.

1. **Type it.** No handwritten reports will be accepted. Avoid hand drawings, figures, etc. Cut and paste figures from the lab handout if appropriate.
2. **Contents:** The reader needs to get the following information from your lab report: What did you do? How did you do it? What did you find?
3. **Length:** Anywhere between 2 and 10 pages. More important than the length is that it contains all the required information in a readable way. Often, shorter is better, because it is easier for the reader (grader) to find the information he/she is looking for. We will not give credit for lengthy prose if it does not add important information.
4. Start with a short **introduction** (1 – 2 paragraphs). What is this about? Why is it interesting? Give a short theoretical overview/background.
5. The main part of your lab report describes the **methods** used and the **results** obtained; the results nearly always need some **discussion**. This main part can be separated into a methods section and a results/discussion section, or, if the lab consists of several parts, it is usually preferable to separate the parts: (Part A: methods, results/discussion), (Part B: methods, results/discussion), etc. Make sure all questions are answered and all results are given, as your grade is mostly based on the results.
6. **Methods:** If applicable, this includes experimental technique, instruments, procedure, data analysis, error analysis (sources and propagation of errors, error bars, suggestions on how to improve precision and accuracy, i.e., minimize random and systematic errors). Do not copy from the lab manual.
7. **Results:** Usually given in the form of tables and figures. Only a few main results should be given as numbers in the text. Do not give more significant figures than warranted by the accuracy of the result. Always include proper units and error bars (where applicable). We will automatically deduct points for missing units. Figures have to have axis labels and units. Tables and Figures are numbered sequentially (Figure 1, Figure 2, etc.) and have a figure or table caption that explains what the figure is about. In addition, all figures and tables must be referenced in the text (Such as “The measured velocity values are summarized in Table 1 and plotted in Figure 2”). Discussion should connect the results back to the theory in the introduction and explain the significance of the results.

8. In one or two sentences, summarize the main result or **conclusion** you draw from the lab. For example, “The measurements clearly show that A is proportional to B^2 ” or “The data suggest a B^2 dependence of A, but are also consistent with a B^3 dependence. More precise measurements are needed to decide between these possibilities.” (Not: “In this lab I learned about”)