

Lab report template

You must report in detail on one experiment performed each week. This report is due the following Monday.

The overall format of the report and its style is up to you. This template is provided mainly to (1) show you how the reports will be graded, and (2) give you suggestions as to what should definitely be included in your report and how to organize it.

You need only turn in one report per group, with all group members' names on it.

1 Purpose and description 5%

A very short (even one sentence) statement of the purpose of the experiment, and a sentence or two describing the overall experiment. There is no need to reproduce what is already in the lab procedure, just a brief overview of what you did.

2 Theory 10%

What are the main equations you need to analyze your data? Derivations are not necessary, you need only state and explain the main relevant equations that will relate theory and your observations.

3 Preliminary questions 10%

If the lab procedure has preliminary questions, you should answer them.

4 Raw Data 10%

Raw, unprocessed data should be reported as plots or tables, depending on what is appropriate for a given data set. This is the data recorded by you or an instrument before any mathematical manipulation.

5 Analysis and Uncertainty 20%

This may include fits ('trend lines'), averages and standard deviation, or data reduction techniques, or perhaps linearization. You should include an estimate of the uncertainty in any measured or reduced quantities along with your rationale for determining it. This is also the place to report any specific things the lab report asks for.

6 Results and Discussion 15%

Relate the data you have to the model/theory described earlier. Does it fit, within experimental uncertainty? If not, do you know why (or can you speculate)? This section need not be lengthy, it is meant to connect theory and observation and *explain the significance of the results*.

7 Conclusion 5%

Don't just end the thing. Wrap it up, e.g., by stating what could be done as a follow-up experiment, or strengths and weaknesses of the experiment/analysis as performed.

8 Appendix: data from other experiments 20%

Of the experiments from this week you are *not* reporting on, include one significant raw data plot/table from each as evidence that you performed the other experiments.

9 Style 5%

These last points will account for how well-written and formatted your report is, etc.