

Documenting work in the lab

Each student is required to maintain a lab notebook and produce lab reports within one week after the completion of each lab.

Lab Notebook: You are expected to write down everything as you go in a laboratory notebook. This means drawings of experimental setups, qualitative observations, quantitative results, and any notes you need to remind you how to do the experiment, such as tricks you learned or deviations from the lab handout. You should perform preliminary analysis of your data immediately so you know if you have made a serious mistake and need to re-take some data. Before you leave the lab, you have to make sure that you have all you need to produce a high-quality lab report. Lab notebook should be neat, so that the TA is able to read through and check it off in the end of each lab session.

Lab Reports: to be completed within one week after the lab session and submitted to the TA for grading.

Guidelines for preparation of the Lab Report

Here are the sections that the Report must include:

- 1) Introduction: describe the goals of the experiment
- 2) Theory: discuss theoretical concepts you will be testing experimentally. You do not have to include full derivation of all standard equations used, but you must convey understanding of the material by describing the steps and assumptions used in derivation of the final form of equations.
- 3) Experiment: describe experimental setup and data acquisition procedures in detail
- 4) Results: present experimental results. When applicable, compare to the theory you included in the Theory section.
- 5) Discussion: discuss what your results mean. Did you get a good match with theoretical expectations? If not, why not? Also, in this section, answer questions (if any) in the lab task.
- 6) Conclusions: briefly summarize your observations and results.

Lab reports should be clearly written: express your thoughts in a concise logical manner, while demonstrating proficiency and understanding of the material. The maximal grade for each lab report is 20 points. The distribution of the points among sections will depend on the lab and is at the discretion of the TA.