

## Lab Notebook Guidelines

The lab notebook is the proof that the experiment was carried out in the manner described in the scientific paper or in the report. All the details of the experiment, results and analysis must be in the lab notebook; otherwise the results cannot be verified. It should be a well-written narrative including experimental schematics and diagrams, plots and raw data, detailed methods for data analysis and interpretation of results. Any person should be able to repeat your experiment based only on your lab notebook.

### General Considerations

- Lab books must be bound. Spiral notebooks are not acceptable. Write your name, date (semester), and class name on the front cover.
- All lab book entries must be in pen. Entries to be discarded or ignored should be crossed out with a single line indicating why this should be ignored.
- Leave the first two pages blank for a table of contents. The table of contents must list the page where each new lab experiment begins. Pages must be numbered. This can be done by hand.
- Start a new page for each new date or new experiment and write the date at the top of the page.

### Technical Content

- Answer all questions from the experiment/lab guide, and complete all the parts of the experiment.
- Summary of objectives and procedures. For each experiment include a statement in your own words of the essential concepts and techniques behind your experiment and the goal of the experiment.

#### Description of the experiment

- Experimental Procedure: for each experiment, write down your experimental procedure in detail so that anyone can understand what you did and repeat your experiment using your notebook without the lab guide. Describe what you did instead of listing a series of instructions using your own words.
- Include diagrams of the experimental setup and circuit diagrams. Diagrams are original drawings of your experiment, not just a copy of the lab guide. They should clearly identify important components of the setup (circuit).
- Include a description of each important component of the setup including functionality, i.e. how each component works, and how the components work together in your experiment.
- Explain how your experiment works and how you use it to obtain the measurements to determine the parameter of interest.

### Data

- Present your data for all parts of the experiments in the form of tables and/or plots with units. Include any information necessary to understand the data (e. g. electronic components, experimental parameters, equipment settings, etc.), and provide units.
- When data is collected electronically (plots, tables, printouts, etc.), it needs to be printed and glued or taped in lab notebook. Loose sheets are not accepted and not reviewed.
- Include a short summary of the results.

### Analysis and Results

All experiments/labs require calculations, derivations, and results including analysis. Anyone, including the instructor, should be able to follow the calculations and data analysis. This validates the results. Include all calculations that may be required for the experiment, for example, to calculate expressions to determine a quantity of interest derived from measured quantities, with a description of the purpose of the calculation.

### Data Analysis and Interpretation

- Perform complete data analysis based on your numerical results to obtain the final results.
- Present the results of your analysis in tables or plots, and data plots and analysis when required. Include results of the data analysis.
- Compare your results with expected values, and comparisons with theory.
- Discuss your results from your analysis.

#### Note:

Write clearly. Illegible content, including data and narrative, won't be reviewed.

Use your own words in writing in your lab notebook. Do not copy from the lab guide or any other resource. Copied sections will result in a null grade. plagiarism a serious form of academic dishonesty.