

Laboratory Notebook Guidelines

An important component of scientific study is communication of experimental results. There are many ways in which scientific results are reported, including seminars, presentations at national meetings (either spoken or posters), and written publications (including journal articles and books). While presentations are effective for the communication of experimental results, written communications (publications) cover a much wider ground.

The most important factor in the laboratory is **PREPARATION**. In a research setting, experiments are often carefully planned in advance so all important factors can be considered. ***Being familiar with the methods and techniques you will use in an experiment prior to setting foot in the laboratory will decrease the length of time you will spend completing the expected tasks.*** This means that the experimental procedure should be read at least twice, and an outline of equipment, instrumentation and chemicals (including state or concentrations) should be made. The requirements for the laboratory notebook in this course will be outlined below.

Lab Notebooks

In order to write an effective laboratory report, one must be able to understand and analyze the collected data. It is much easier to interpret collected experimental data when it is recorded in an orderly detailed manner.

Requirements of a laboratory notebook:

- Ø Permanent pages
- Ø Use of permanent ink (ball-point pens work best)
- Ø Numbered pages
- Ø Legible and clear recording of results.
- Ø Detail, detail, detail. – temperature, instrumental settings, units, chemicals used (name and formula), names of spreadsheets used for data workup.

Maintaining the lab notebook:

Table of contents:

Refer to each experiment by name and page number; update this weekly!

Main Notebook Text:

Pages must be numbered, place the date and experiment on each page. No loose scraps of paper should be used in place of the notebook. ***All data must be recorded legibly and directly into the notebook.*** When working up results, charts or graphs produced in Excel, should be fastened onto permanent pages using tape or glue. No data should be erased or scribbled out, instead a single line should be drawn through any errors (~~like this~~), and a brief explanation for the strikethrough should be made. All recorded data should be labeled with appropriate units.

Laboratory Notebook Guidelines

Each Experiment:

- ∅ Prior to lab you should prepare your lab notebook.
 - Start the first page with the title of the experiment to be performed.
 - Include a *brief, original* objective statement of the experiment.
 - List any chemicals or equipment needed for performing the experiment.
 - Prepare tables in advance for data recording.
 - Review any relevant techniques in your textbook or other texts provided by your instructor. Even if it seems like something you've done many times before.
 - Leave room for calculations, statistical analysis, etc.
- ∅ During lab:
 - Summarize the steps taken to perform the experiment
 - Write down relevant information including but not limited to:
 - § unknown IDs
 - § commercial product names and ingredients (include quantities if necessary)
 - § instrument models and types
 - § any measurements made with proper units
 - § reagents used (including state and/or concentration)
 - § general observations (e.g. color changes)

If you forget your laboratory notebook, you will receive no credit for your data sheets for that lab.

All data collected must be recorded in your laboratory notebook.

At the end of the semester, your lab notebooks will be collected to be graded. Spot checking of your notebook (for grade) will be performed throughout the semester.