Formal Lab Report Format

According to recent nationwide surveys, engineers and other professionals in the sciences spend at least fifty percent of their time writing reports and memoranda. The quality of oral and written reports presented by working professionals is invariably one of the criteria used by their superiors in performance evaluations, making the ability to write a good, professional-quality report is an essential, marketable skill. For these reasons, training and practice in report writing are important parts of your education.

The laboratory report should always be written for the convenience of the reader. Thus, for example, each section of the report should be headlined, and the sections should be arranged in an appropriate, easily understood sequence. In the context of the course the laboratory report serves as an executive summary to your boss to highlight the observations you made, what data you gathered, and what you conclude as a result. While it may seem logical to you to write a report in a chronological or historical sequence, such an approach is not the most useful for your readers, who would find such a report difficult to scan for the items of interest.

As in all professional writing, clarity and precision in both language and presentation of data are essential in a laboratory report. The content of each section, in your laboratory report, is described below.

1. Report Header

A brief title that describes the lab
Your name
Date(s) the experiment was performed

2. Statement of Objective

State the objective(s) of the experiment concisely, in paragraph form. The laboratory writeup will help here. The fact that experiments in laboratory courses are being used to educate students is a secondary objective and should not be stated in the report. In other words, the objective written in your report should never be to "familiarize students with different data structures." Rather, the objective should state the problem that your procedure and data attempts to answer. Some key verbs that you will use in the objective might include "to investigate," "to plot," "to measure," or "to compare." The section should inform the reader precisely why the lab was undertaken.

3. Procedure

Describe the procedure used to carry out the experiment. This is NOT step-by-step. Sufficient detail should be provided to allow the reader to understand the experiment. As with all sections of the report, the procedure describes what was done in the lab and should be written in the past tense. Copying the procedure from a lab assignment would be an inaccurate reflection of the work completed in the lab and is not acceptable.

4. Data Analysis

All the pertinent data obtained during the experiment are presented in this section. Think of the data as the flags you are capturing. Examples include what was the objective of the flag, what was the value of the flag, and what difficulties you encountered in capturing the flag(s).

5. Discussion of Results

In this section you interpret the outcome of the flags. This section should answer the question "What does the flag tell us?" Compare your results with expected behavior, interpreting the results you obtained compared with the practical behavior in the real world.

6. Conclusions

Examine the outcome in the light of the stated objectives. This section should answer the question "So what?" Seek to make conclusions in a broader context in the light of the results. If there are any implication discuss your recommendations.