

Report on How to Write a Lab Report

Your Name Here
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Introduction

Clear, concise, and grammatically correct presentation of scientific data is the final step in the scientific process. Reporting your research findings is an attempt to *convince* the reader that your data is an accurate representation of your study objectives, and is *believable*, and therefore that your conclusions are valid. Hence, the way you present and discuss your data is crucial in communicating your findings.

Reporting can be done in a variety of formats, depending on your objectives and your audience (just Google “report writing” for a variety of formats, e.g., Novikova). The objectives of this report are to describe a simple format used to *present data*, and then to come to some *conclusion* about that data, including *recommendations* if appropriate. This document is an example of very basic report.

Materials and Methods

Here you should clearly state what samples were collected and how, describe your lab methods, and state what measurements were made. Include enough detail so that someone could actually duplicate your study and (hopefully) get the same results. You can cite a reference for a method you used, or just describe how you did the experiment.

Results and Discussion:

Here you present and discuss the data you collected. Tables should be done neatly, with all columns clearly labeled and numbers aligned using an appropriate number of significant figures. Figures and tables should be clearly labeled and readable (see Table 1). Both should have captions describing the contents, and should be understandable without much reference to the accompanying text.

Table 1. An example table.

Header	Data Column 1	Data Column 2	Data Column 3	Data Column 4
Variable A	21.33	2.65	5.54	0.0125
Variable B	101.2	33.8	9.97	0.0785

Discuss your data in relation to the stated objectives of the study. First, try to evaluate if you think your data are reliable, or if any mistakes were made. If you are confident with your results, refer to the tables and figures directly, and aim at making a final conclusion with regards to the study objectives. Refer to any other studies or to regulatory agency information if they relate to the study objectives.

Conclusions and Recommendations

This section should clearly state your conclusion and any recommendations as to risk, remediation, or follow-up studies that might be done related to your site. Try to make your conclusions as specific as possible, but firmly based on the data you collected. If possible present a range of options for your recommendations as to how to proceed, based on your findings.

References Cited:

Use a consistent format taken from any scientific journal; check to make sure all text citations have a reference listed here, and vice-versa.

Novikova, Irina. How to Write a Lab Report. Accessed at <http://physics.wm.edu/~inovikova/phys251/AddDocs/labreport.pdf>, April 2010.

Abstract/Executive Summary

For some reports (especially long ones), an abstract or executive summary is included as the first section of the paper to quickly summarize the entire study in a brief paragraph. This section should state, within 250 words, the following: the *objective* of the study, a brief description of the methodology and samples, and a brief summary of the major findings and conclusions.

SOME NOTES ON WRITING....

Reports are the final output of scientific activity, the actual evidence of what was done and conclusions that were drawn. You will be judged professionally on your writing ability and style as well as the scientific content of what you write. In this course part of the evaluation of your reports will be the quality of your writing; some of the attributes of “good writing” are listed below.

“Good writing” is—

- Mechanically *correct* (spelling, punctuation, grammar)
- Well-*organized* (including sections & subsections where needed)
- *Clear* (wording, sentence structure, pronoun reference, etc.)
- *Concise* (no unnecessary words, phrases; not repetitive)
- *Interesting* (varied sentence structure and word choice)
- *Compelling* (makes a logical argument, comes to definite conclusion)

Tips to good writing:

1. *Use your word processor* to spell- and grammar-check as you write; dashed underlining that appears in MS Word, for example, usually indicates a misspelling or grammar error. Right-click on a word to get alternate spellings or grammar suggestions.

2. *Use active voice (mostly)*. Often we use passive voice in scientific writing (“the experiment was performed...”) in order to take the experimenter (“us”) out of the picture so the study appears more “objective”. This is sort of silly, since “we” (or somebody) obviously *did* the experiment. Try to use active voice if possible (“we performed the experiment...”).

3. *Proof-reading* is pretty obvious; usually we don’t do this out of laziness, but it is essential to catching obvious errors. Even a “draft” report should be free of spelling, punctuation, and grammar mistakes, and make a logical argument. If you’ve forgotten when to use a comma, check a reference such as *St. Martin’s Handbook*.

4. *Get a second opinion*. Find a friend or classmate to read your report and offer criticism on the overall clarity/quality of the report, and/or point out errors or ambiguous sentences. Your reports are intended for a scientific audience who knows something about the topic, but should be readable (at least) by the general public

5. *Revise*; nobody writes a great report at one sitting, so you need to budget time to go back and revise your wording, sentence structure, even organization if needed. If you submit a report full of errors in this course, you will be asked to re-write it before a grade is assigned. So, do it right the first time.