

## Guidelines for Writing a Good Report

1. There must be enough information in the report to allow the reader to reproduce all your calculations and results. If including some of this material (*e.g.*, raw data) in the main body of the text is not appropriate, place it in an appendix.
2. Number all figures and tables, and refer to them by such numbers in the main body of the text. It is customary to use Arabic numerals for figures and Roman numerals for tables. Each table and figure must have a caption. Use a computer to draw the figures of data, and neatly type the tables. If you do not have access to a computer, see either the instructor or the TA.
3. Do not omit units from quantities which have units. Also use the correct abbreviation. If in doubt, consult with the instructor or a scientific style manual.
4. Define all symbols used in the experiment and the calculations.
5. Do not make grammatical errors. If you are in doubt about the spelling of a word, consult a dictionary.
6. All calculations should be discussed in the report. How did you determine the various numbers that go into the calculation? If possible describe the principle behind the expression and/or include a short derivation. Do not make references to items or quantities that have not been previously introduced into your paper.
7. Error analysis is important. Be particularly careful about stating errors. It is poor practice to either grossly overestimate or underestimate experimental error. If in doubt, consult the instructor or TA.
8. Write your results with an error rounded off to the correct number of significant digits given by your error calculations.  

Example:  $2.1345983 \pm 0.2608$  cm (wrong)  
 $2.13 \pm 0.26$  cm or  $2.1 \pm 0.3$  cm (correct)
9. Do not copy lengthy sections from books or manuals. Briefly describe in your own words the important aspects of the material and give the source as a reference. Any discussions with faculty, colleagues, TA's etc. must be referenced as private communications if used in your paper.
10. Any serious comments about the wisdom of the experiment, improvements to the experiment, or possible use of different techniques or methods to get more accurate results and/or more information must be carefully presented in the conclusion.
11. If you are unable to collect very much data because of experimental difficulties, the procedure section of the report can be enhanced with a discussion of the problems and their resolution. The added discussion should supply you with plenty of material for a report provided you are spending a sufficient amount of time in the lab. Consult with the instructor or TA.
12. A good reference for scientific writing is the *AIP Style Manual* which is published by the American Institute of Physics. A copy can be found in the Science Library. Finally, look at articles in scientific journals like *Physical Review* for examples of appropriate format and style.