

Physics 3902 Generic Lab Policy

Fall 2005

Dr. Xiaochun He

Key Components

A. Lab Folder: Each student must have a lab folder (or binder) in which all of the handouts from each lab project and the lab logbook (see B) should be included in a proper order.

B. Logbook: Your logbook should contain accurate and detailed notes of everything you do for your lab project. Good notes will not only show your consistency and thoroughness, but will help when writing a Lab Report.

- Your entries should be dated
- Your Logbook should be written in ink only.
- Logbook must be bound - stitched or glued
- To organize, divide into sections, leave Index space in the front or back of the book, and number your pages
- Include notes on contact people, readings and bibliographic information
- Include your raw data (raw data does not go on your backboard) and your thoughts about the results

C. Lab Report:

Preparing An Abstract

When a lab project is finished, you are REQUIRED to write a (maximum) 250-word abstract. An abstract is a concise summary of the lab project.

Rules for abstracts:

- 1) The abstract must be typed.
- 2) The abstract must be 250 words or less.

The following elements should be included in a proper abstract:

1. **Title** The title is limited to 65 characters and spaces. It should be brief and descriptive. This title should be the same as your Lab Report.
2. **Problem** The statement of the problem tells the reader what specific questions are addressed in the study. The variables and limitations are identified. The intent and objectives of the study are made explicit in this statement.

3. **Purpose** The purpose states the usefulness of the study. It answers the question why the project was undertaken.
4. **Hypothesis** The hypothesis is an educated guess that shows the relationship between a set of observed facts and a theory. The hypothesis limits the scope of the investigation and unifies the research design. Oftentimes it is an IF/Then statement.
5. **Procedure** The procedure provides a brief summary of what was done.
6. **Conclusions** The conclusions provide a concise statement of the outcomes of the lab project. This should be written in non-technical language and be related directly to the hypothesis. The conclusions should identify unsolved aspects of the original problem or any new problems identified.

Helpful Hints

- Use past tense and third person.
- Use correct spelling and sentence structure.
- Try to avoid use of highly specialized words or abbreviations.
- Restrict procedure to identification of method or type of process employed.
- State results, conclusions, or findings in clear, concise fashion.

How to Write a Lab Report

A report describing your lab project is REQUIRED, A good lab report includes these sections:

1. **Title Page** Project title, name, course and semester.
2. **Table of Contents** Number each section as you finish writing.
3. **Introduction** The introduction should explain the background information about the lab topic. Establish a strong rationale for the study by emphasizing the importance of the lab project. Conclude by stating the lab outcome.
4. **Materials & Procedures** Describe in detail the methodology used to derive your data and observations. Use photographs and drawings of lab equipment (if necessary) to describe your experiment further. Include a precise description of the sample, any apparatus that was constructed or modified for the study, and methods of data collection.
5. **Results** Present the data collected in the experiment in tables and graphs; summarize the data in narrative form. Include statistical analysis of the data. Do not include raw data.
6. **Discussion** Your results and conclusions should flow smoothly and logically from your data. Be thorough. Compare your results with theoretical values, published data, commonly held beliefs and/or expected results. A complete report should include a discussion of possible errors or problems experienced.
7. **Conclusion** Briefly summarize your results.

8. **Acknowledgments/Credits** Credit assistance received from peers, teachers, and other sources.
9. **References/Bibliography** Your reference list should include any material that is not your own (i.e., books, web sites, papers, journal articles and communications cited in the paper).
10. **Appendix** Include critical information that is too lengthy for the main section of the report, such as raw data, additional tables and graphs, copies of surveys or tests, and diagrams of specialized equipment.