

GUIDELINES FOR WRITTEN LAB REPORTS

Title and Authors

A good title should describe lab concisely, adequately, appropriately. List the students who worked on the lab, your group number, and the roles each of you played (Manager, Recorder, Skeptic). If a team-member did not contribute to the report, their name should not be included.

Abstract

The abstract should summarize the gist of each part in order and convey a sense of the full report concisely and effectively. It should briefly state not only what was done, but also what was discovered. Although it should be placed after the title, it is usually best to write the abstract after the rest of the report is complete.

Introduction

The introduction should present the goals of the report – the why of the lab. This is also the place to provide the necessary background for someone reading the report. All physics concepts used should be clearly and concisely explained.

Materials and Method

This section should identify all key materials and equipment used, as well as figures (with clear labels) of the setup. The method should clearly and concisely describe what was done (in your OWN words) and give enough detail so that another student from the class could repeat exactly what you did and obtain similar results. Specifically for Vpython programs, provide an overview of the program you wrote (or the modifications of an existing program) in English (NOT Vpython code).

Predictions

When the lab explicitly requires predictions, you may include them in a separate section or in the materials and methods section. This should present the predictions performed during the lab in class and should include an explanation of those predictions. Do NOT “revise” them after the lab is complete; they do not need to be correct and in fact, predictions are often not correct. An explanation of why your predictions were or were not correct, and what learning occurred as a result of performing the lab should be included in the conclusion section.

Results

The results section should contain all data gathered and analysis of this data. Data should be presented in a table when appropriate and include title, column headings and units for the measurements. Graphs used for analysis must also include a title and labeled axes with units. This section should also contain any needed physics diagrams that are clearly labeled. Sample calculations should be included with explanations of how results were obtained with proper units. The overall findings should be physically sound and stated effectively.

Conclusion

The conclusion is a summary that should explain the findings presented in the results section. Address any specific questions mentioned in the lab procedure both accurately and concisely. If the lab has multiple parts, these components should be tied together. All approximations and assumptions should be stated and predictions need to be addressed, with clear explanations of what was learned. Identify possible sources of error in the experiment, as well as what could be done to improve the data collection (Be specific – do NOT say that the apparatus needs to be

better, but explain HOW it should be improved and what effect this might have on the data).
Discuss any applications or extensions of these results and possible further study.

References

If you utilize any external source for information or data, you MUST cite that source.

Lab 02 Rubric: (100 points total)

TITLE (4 pts):

Describes lab concisely, adequately, appropriately
Author list complete, with roles and group number included.

ABSTRACT (3 pts):

Conveys a sense of the full report concisely and effectively

INTRODUCTION (9 pts):

Effectively presents the goals of the report
Provides sufficient background information
Explains any physics concepts used

MATERIALS AND METHODS (12 pts):

Identifies all key materials/equipment used
Presents clearly labeled figures of setup for parts (a) and (b)
Clearly and concisely describes what was done (in OWN words)
Gives enough details to allow for replication

VPYTHON (*submitted separately to WebAssign*) (12 pts):

Program runs, with an appropriate time step (may be different from given one in lab)
Program obeys momentum principle
All forces are appropriately defined
Spring moves in three dimensions

DATA (*submitted separately to WebAssign*) (9 pts):

Data from part (a) is accurate and organized
Graph from part (a) is clear and accurate
Data from part (b) is accurate (*WebAssign will grade this*)

RESULTS (12 pts):

Effectively states overall findings
Clearly labeled force diagram for part (c) is presented
Sample calculations for part (a) completed correctly and explained clearly
Results are physically sound

CONCLUSION (24 pts):

Major findings of the lab are explained
Questions from part (a) are answered accurately and concisely
Questions from part (b) are answered accurately and concisely
Questions from part (c) are answered accurately and concisely
All components of lab are tied together (why were these labs done together?)
Conclusions are physically correct
Quantitative error analysis for part (a) is discussed
Qualitative error analysis is provided (approximations, error sources, improvements, etc.)

PRESENTATION (9 pts):

No spelling errors

English is concise and grammatically correct

Lab report is written in past tense, consistent third **or** first person

EFFECTIVE IN-CLASS WORK (6 pts)

The group made good use of allotted time

The group performed functionally

→ GROUP EVALUATION (will be graded separately)