Name
Group Members
Period
Date of experiment

Lab Report Guidelines

The lab report serves as a record of your experiment and summarizes the findings. It should be concise and descriptive. Lab reports should be written in passive voice and in third person - not in first or second person (I,me,my,we,our, OR us.)

Title

The title of the lab report should be phrased in the form of a question and be detailed on what is being studied. Generally, it follows the form “What is the relationship between (quantity 1) and (quantity 2)” or “How does (quantity 1) change as (quantity 2) change?”

> Ex: What is the relationship between the number of spaghetti strands in a bridge and the number of washers the bridge can withstand before breaking?
>
> Ex: How does a cart’s position change as time changes as a cart travels along an inclined track?

Abstract

The abstract is a concise paragraph that summarizes the lab report and discusses the objectives of the study (lab purpose), what was done (methods), what was found (the relationship between studied quantities) and what was concluded (significance and units of the slope and y-intercept).

Often the abstract is the last piece of the report written as it takes pieces from the rest of the lab report.

Introduction and background

The introduction and background provides context for the lab experiment. Why are we performing this lab? What quantities are we measuring and what quantities are we studying? How does this experiment build upon our current understandings or how is it similar or different to our previous experiments?

Experimental (Materials and Methods)

Describe the lab set-up including all materials in conducting the experiment. Include specifics in how data was collected, what variables were controlled and to what degree.

Results (Data tables and Scatterplots)

Describe what data tables show. Refer to data tables with figure numbers.

Display all collected data and all manipulations of data (averaged and linearized) in organized data tables. Label and describe data tables appropriately with units and figure numbers. You can usually move data tables from Google Sheets or Excel with minor editing.

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Display all necessary scatter plots that show the averaged data and the linearized scatter plot. The linearized scatter plot should clearly display the line of best fit, equation of the line and R^2 value. Include labels on the axes with the appropriate units.

Data tables and scatterplots should all fit on one page.

Discussion:

What is the proportional relationship between the measured quantities? What does the slope and y-intercept represent in physical terms (i.e. not “rise over run” or “change of y over change of x”)? How do you know this? (See at what is being measured on the axes and what units are being measured)

What is the derived mathematical model(s) and what does it describe?

What was your R^2 value and what are some possible sources of error? Which of the sources listed proved to most significant in affecting the accuracy of the data results? Explain why this source of error is significant enough to reconcile an R^2 to be less than 1.

Based on the whole class lab discussion, describe similarities and differences of the data from your group to others. What accounted for the differences in the lab data?

Optional: Based on your findings, what scenarios could be interesting to further study?