Stony Brook University
Department of Physics and Astronomy

PHY 133 L99

Title of the Lab

First and Last Name

Lab partner: First and Last Name

TA: TA Name

Experiment Date: 20 August 2018
Report Date: 24 August 2018

Introduction

The introduction should explain the purpose of the lab. Give some historical background and explain the physics concepts used in this lab (make sure to cite your sources!). What is being measured and, very basically, how are you going to measure it? What do you expect the results to be? Don't worry, this should be at most 8 sentences.

Theory

This section is optional. Include it if there is a physics theory related discussion question or if you must do a derivation of an important equation. If those are not part of the experiment, leave this section blank or leave it out.

Procedure

This section is optional. Include it if your method was different from the procedure laid out in the lab manual or if there is a procedure discussion question. If those are not part of the experiment, leave this section blank or leave it out.

Some Teaching Assistants will request a brief summary of the procedure. That is their choice, but it must be brief and must be your own writing!

A photo or image of the experimental setup is not necessary. If you choose to include one, an example is shown here in Figure 1. The code assumes that you have uploaded your image to Overleaf.

Data

Your raw data (measurements you took in the lab) will be in the .xlxs data sheet which you include with your lab report submission. Your TA may require that

Figure 1: A cool picture of the LIGO detector, where gravitational waves were detected for the first time, from: https://www.ligo.caltech.edu/news/ligo20170927.

you present some of the data in the report itself. This is best done in a table such as the one below.

You can make a table in LaTeXusing this nice online table generator, either by importing an excel/csv file, or by inputting your numbers by hand: https://www.tablesgenerator.com/

Table 1 is an example table with some made-up student data!

Student Number	Measured Value of Velocity (m/s)	Error (m/s)
1	10.3	0.2
2	9.7	0.4
3	10.2	0.1
4	9.8	0.3

Table 1: Table with made-up student data of measured velocity and error.

Calculations

Include calculations of important results and uncertainty propagations here. For large data sets you can include only one calculation of each kind. As the semester goes on, you will not need to show steps that you so in your data sheet.

You may include calculations as images of hand-written work at first, but you should learn to use an equation editor of some variety (Word, Google Docs, MatLab, etc).

In LaTeX, equations are formatted very nicely! Here are some examples of equations or expressions using math:

$$\frac{x^2 e^{-x+5}}{2y} \tag{1}$$

where x and y are variables.

$$x(t) = x_0 + v_0 t + \frac{1}{2} a t^2 \tag{2}$$

is the more familiar position equation, where x_0 is the initial position, v_0 is the initial velocity, a is the acceleration, and t is the time.

Results

Present plots, important results and mention whether your values agree with the accepted (or 'expected') values within experimental uncertainty.

Conclusion

Compare your results (within error) to 'accepted' results or those from other experiments. If they are not consistent, what could be some reasons why? Repeating some of the information from above is appropriate here but stay brief.

References

This section is optional. We do not regard your lab report as a piece of independent scholarship and so do not require references. Include them only for sources from which you have quoted or paraphrased.

As a rule-of-thumb, if you feel that a source should be cited for something you put in your lab report, it is better to leave it out of the lab report!