

# LAB REPORT INSTRUCTIONS

Following are the parts of each lab, in the order in which they should be assembled.

## A. Cover Page

Name  
Roster Number  
Course  
Instructor

Title of the Experiment

Purpose/Objective – Use proper sentence structure, in your own words, to explain the purpose of doing the lab experiment. (What are you trying to show or verify? What do you expect to learn?)

## B. Data

Initialed and dated Data Sheet

This includes the recorded measurements and their units under proper headings.

Printed graphs

**\*\*\*FAILURE TO HAVE YOUR DATA INITIALED AND DATED RESULTS IN A 0%\*\*\***

## C. Calculations

This is where you use the collected data to calculate your results in order to reach the conclusion as stated in the objective/purpose section. When using a formula, give the reason you are using that formula (in a complete sentence), state the formula itself, then substitute the numbers into the formula to find the unknown. You do not need to show simple calculations such as converting units. Percent error/difference calculations are done in this section as well.

## D. Table of Results

Do NOT include the data you recorded.

## E. Conclusion

Consider the following:

- Speak to the fact that you were or were not able to verify the theoretical outcome with the experimental outcome. Does the percent error/difference verify the theoretical? (Generally, a 10% error margin is acceptable.) Were you able to prove your objective? Did your results compare with the known value? Why or why not?
- Are there any sources of error in the laboratory procedure? What are they? How could it be improved? What are some errors that may not be avoidable? HUMAN ERROR is NOT an acceptable answer – ever.
- Was there a subtle point of physics that this lab brought to your attention? What, if anything, did you learn?
- Do NOT repeat facts that are in your table of results.

## A Message from The Lab Grader (Linda)

Hello and welcome to all of you crazy physics students! I'm Linda Schmitt, and I'll be grading your labs this summer. I'll also be working in the lab a few hours a week so I'll be able to help you with questions you have on your labs and homework.

I am also the "Group Tutor" for College Physics I and Engineering Physics I this summer. If you are a student in either of these classes, I hope you choose to attend the tutoring sessions I am offering. However, if you do, we will NOT discuss the labs during that time. I am employed by another department for that tutoring and it would be a conflict of interest to discuss labs during group tutoring time. Please respect this.

While first and foremost I am here to help you learn physics – and I want to do that – I'm a stickler when grading. I have high expectations and standards that will not be lowered. You are in college and I expect that your work will reflect that fact.

Breakdown of points:

Labs with Pre- and/or Post-Questions		Labs without Pre- and/or Post-Questions	
*Following Instructions	10	*Following Instructions	10
Purpose/Objective	10	Purpose/Objective	10
Data and Graphs	10	Data and Graphs	15
Calculations	20	Calculations	25
Results Table	15	Results Table	20
Conclusion	15	Conclusion	20
Questions	20		

Neatness counts! Your work should be clear, organized in a logical manner, and neatly written. Neatness is defined by the reader (me), not the writer (you). You are not required to type your labs unless I determine that your handwriting is too hard to read.

\*Following Instructions means 1. Be neat and organized, 2. All lab papers are assembled in the correct order, 3. You only have data on the data page (NO results or calculations), etc.

**EVERY LAB'S DATA MUST BE INITIALED AND DATED BY A LAB INSTRUCTOR OR ASSISTANT.** This is to happen when you take the data, not the next day or the next week. Failure to have these initials will result in a 0% on the lab.

Late labs will not be accepted. Because of this, one lab grade will be dropped.

You can only do the assigned labs during the dates posted on your course schedule.

The purpose/objective must be written in your OWN words. Merely changing a word or two from the stated objective of the printed lab by using synonyms does NOT constitute using your own words.

Hint 1: Do the experiment, calculations, and results table, and *then* write the purpose/objective. You'll know better what you are trying to accomplish.

Hint 2: You are usually trying to verify a number or formula. This means that you are trying to show that this number/formula is valid.

The calculations section needs to be neatly organized so that your work makes sense and flows in a logical manner. The work you show must be accurate and mathematically sound. Your final answers must include the correct units, but you need not include units in all your steps.

Please note the difference between “percent difference” and “percent error”. (The formulas for each are listed below.)

- Percent Error is used when you are comparing an experimental value with an accepted value or a value known to be true.
- Percent Difference is used when you are comparing two experimental values.

$$\text{Percent Error} = \frac{|\text{Theoretical Value} - \text{Experimental Value}|}{\text{Theoretical Value}} \times 100\%$$

$$\text{Percent Difference} = \frac{|\text{Exp. Value 1} - \text{Exp. Value 2}|}{\text{Exp. Value 1} + \text{Exp. Value 2}} \times 200\%$$

A “high” percent error/difference (usually more than 10%) often means one of three things: 1. You wrote something down wrong in your data or calculations, 2. You made mathematical errors in your calculations, or 3. You did the experiment incorrectly. NONE of these is to be written in your conclusion as “justification” for your error. **You should take your data and do your calculations early enough in the week so that you have time to ask for assistance in either finding your mistake(s) or, if need be, you can re-do the experiment.**

The table of results should include headings, the results of appropriate calculations (including units), percent error/difference (including the % symbol), and perhaps an accepted value or two. You will often have to decide for yourself, based on what the lab entailed, the criteria that will be in your table. This is tied directly to your objective/purpose.

Your conclusion must be written in complete sentences with proper spelling, punctuation, and grammar. You needn’t write a book, but two sentences are not enough. Be sure to address the topics or questions stated in the Lab Report Instructions.

Communication between Me and You:

- If you need to contact me and the times I am scheduled to work in the lab are not convenient for you, you may e-mail me at [lschmitt@stlcc.edu](mailto:lschmitt@stlcc.edu).
- If I need to communicate with you I will do so by putting a “note” in your folder or by posting general information in the lab room.

<b>Lab Instructors:</b>	College Physics I	Amanda Truong	ahall@stlcc.edu
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**Lab Assistants:** Tony Alcozer (Lab Technician)  
Dino Edmonds (Florissant Valley Physics Instructor during the Fall/Spring)  
Craig Lincoln (Meramec Physics Instructor during the Fall/Spring)  
Linda Schmitt (Math SI Leader, Physics Group Tutor, Adjunct Math Instructor)  
Kyle Stumbaugh (Florissant Valley Physical Science/Astronomy Instructor)