

Formal Lab Report Criteria

Formal lab reports are to be submitted in type-written form. There will be a deduction if these labs are hand-written. All equations, graphs, and regressions (that are required as part of the lab report) should be done on a computer as well. If you do not know how to type equations, please be sure to ask for help. (Microsoft Word includes Microsoft Equation, which can be used to type equations that look better than using Word alone.) Formal lab reports, worth 100 points, consist of six sections. These write-ups are to be similar to those that are required in college laboratories. The required sections should be in the order given below and each section should have a heading. The description of each section follows:

Purpose of Experiment: (10 points)

The purpose should consist of one sentence that describes the goal of the experiment. Remember, we will not PROVE anything in this class. However, we will demonstrate many principles.

Theory: (20 points)

This section should describe the concepts that were discussed in class, and are contained in the textbook, that are relevant to this experiment. Any equations that will be used in the calculations should be derived (without values substituted in them). However, derivations alone do not comprise the theory section. Any symbols or constants that will be used should be introduced here as well. This section DOES NOT describe what you are going to do during the experiment.

Method: (10 points)

This section is used to explain the procedure of the experiment. You may compose a list of steps or you may explain them in paragraph form. Assume the reader understands physics. Also, you may skip trivial steps, such as, turn on the computer. If a diagram will help clarify a step, it should be included.

Data & Calculated Values: (20 points)

Any data that was collected during the lab should be included here. Constants and calculated values should be included as well. However, calculations should not be included in this section. If data is clarified by using a table, then the values should be put into tabular form. Be sure to include units with all values.

Sample Calculations: (20 points)

One calculation of each type should be shown here. For example, if an average is calculated six times during an experiment, then only one calculation needs to be shown. Each calculation should consist of the equation used with variables only, followed by the substitution of the numbers and final answer. When possible, error analysis calculations should be shown.

Conclusion: (20 points)

One paragraph should be written to explain reasons for errors. There will be experiments in which there is little variation from the expected value, and there will also be times when there is a large error. Try to explain what may have gone wrong during the experiment. When the error is unexplainable, the experiment should be redone to obtain better data. Human reaction time is a viable error when stopwatches are used. However, human error is not an acceptable reason. The conclusion should also include explanations for any charts and graphs. The conclusion should also state the outcome of the experiment. Did you accomplish the purpose of the lab? Were your results reasonable? Example – If you were calculating how fast you can run from lab data, would a value of 1000 m/s be reasonable?