# Physics Lab Report Rubric

Author(s):                                                                                                 Evaluator:

| Aspect of Report | 0 – 1<br>Missing/Insufficient | 2<br>Sufficient | 3<br>Good | 4<br>Excellent |
|---|---|---|---|---|
| **Introduction**<br>Weight: 1 | Student gives no overview or gives insufficient information to describe the experiment and its goals.<br><br>Student plagiarized from the handout. | Student gives a brief overview of their experiment.  Student shows a rudimentary understanding of the experiment. | Student demonstrates a good understanding of the purpose, execution, and overviews the data analysis of their experiment. | Student shows an excellent understanding of their experiment, provides motivation for it, overviews the data analysis to be performed, and relates it to similar experiments . |
| **Theory**<br><br>Weight: 2 | Student does not provide the theory behind the experiment, the theory presented is irrelevant or is pure speculation. If a prediction is made, it is not justified or it is based on flawed logic.  No mathematical model is provided. No data analysis procedure is provided. Student plagiarized from the handout. | Student shows some understanding of the relevant theory. Some mathematical reasoning is presented.  A prediction is made, but with imperfect or unclear reasoning.  Data analysis section is present but lacks rigor. | Student demonstrates good understanding of the theory behind the experiment. Mathematical reasoning  is correct and relevant.  A prediction is made based on this theory.  Data analysis procedure is clear. | Student demonstrates clear understanding of the theory behind their experiment. Mathematical/logical arguments are correct and relevant.  Student makes a prediction of their result(s).  Data analysis procedure is clear and uncertainty analysis is provided. |
| **Experimental Procedure**<br><br>Weight: 2 | Student did not demonstrate an understanding of what was done in the lab to acquire their data or was too vague, requiring the reader to be intimately familiar with the experiment to understand what was written. The student writes "instructions." The student reports falsehoods.  The student plagiarized from the handout. | Student describes the procedure they followed expecting the reader to be relatively familiar with the experiment. | Student is clear in describing the procedure they followed.  Reader could reproduce the experiment following this narrative. | Student clearly details the procedure they followed to  collect their data.  Student details problems encountered and solutions implemented. |
| **Data**<br>Weight: 3 | Student is missing results, tables, or graphs requested in the handout.  No units provided. No uncertainties are provided. Data is incorrect.  Raw data is included.<br><br>No raw data sheet.  No sample calculations. | Student provides results requested, but some units are missing or incorrect. Tables/graphs are not formatted properly. | Student provides all results requested.<br><br>All units and some uncertainties are provided.<br><br>Tables and graphs properly formatted. (No pictures of printed out graphs). | Data are clearly presented<br><br>All uncertainties are present and correct<br><br>Tables and graphs are properly formatted. Trendlines/numerical fit parameters clearly presented. |
| **Discussion and Conclusion**<br>Weight: 3 | Student provides little or no comparison between theoretical and experimental results, compares them in a non-numerical, subjective manner, or compares them in a way that suggests they do not understand the experiment.<br><br>Student simply repeats what they wrote in the Data Section.<br><br>Questions posed in the handout are not answered or answered incorrectly.<br><br>Student uses the term "Human Error." | Student makes some correct numerical comparisons between their theoretical and experimental data.  Questions are answered mostly correctly, but with no supporting work. | Student makes correct numerical comparisons between their theoretical and experimental results.<br><br>Student discusses uncertainties.<br><br>Questions are answered correctly with supporting work. | Student makes clear and correct connections between theory and experiment.<br><br>Student properly analyzes uncertainties and error bars.<br><br>Student makes connections between this experiment and others and/or suggests valid follow-up experiments or improvements.<br><br>Student has fully and correctly answered all questions with supporting work. |
| **Mechanics**<br><br>Weight: 1 | • Grammar and organization are poor.<br>• Narrative is one long paragraph or paragraphs are haphazard.<br>• **Informal**: use of cliches,  colloquialisms, or second person.  Student uses "mass" as a verb.  Student calls a quantity by its unit.<br>• Report contains redundant or unimportant "filler."<br>• Equations, tables, and figures are poorly formatted,  not numbered or centered. | • Grammar is mostly correct<br>• Basic Organization, but sections may have overlapping information.<br>• Paragraph structure may need work<br>• Student uses acronyms or shortcuts without prior definition.<br>• Equations, tables, and figures are formatted properly. | • Narrative flows smoothly and is clearly organized.<br>• Minor flaws in presentation, formatting, or flow.<br>• Equations and figures are formatted properly and numbered and surrounding text provides proper explanation. | • Report is clear, organized and neat.<br>• Grammar is correct.<br>• Paragraph structure is correct.<br>• Proper verb tense is used.<br>• Narrative flows. |

# Final Score: