

NAME:

EXP'T:

**XX/100**

## Guideline / Grading Scheme:

### General (5 points)

Is the lab report well-written? Is the English grammatically correct? Is it concise yet complete? Does it seem like something that is meant to be easy to read? Or is it just a spreadsheet pasted into word? (x/5)

### Abstract and Introduction (10 points)

Is the student's name, SID, lab number, lab partner, and date on the lab report? Does the lab report have page numbers? (x/2)

Is there a ~1 paragraph abstract with an appropriate summary description of results? (x/3)

Is there an introduction that correctly describes the questions the laboratory is probing using both equations and qualitative description in a concise manner? Are the variables in the equations defined with text? Could a person who is a physics student but has not done the lab, and who is not your instructor, understand the purpose and importance of the lab from the introduction? (x/5)

### Equipment and procedure (10 points)

Is the equipment used in the experiment listed and described in enough correct detail? Are make/model numbers and any necessary calibration constants included? (x/3)

Are there appropriate, correct figures showing the experimental apparatus? (x/2)

Are the experimental procedures used correctly described in language appropriate for a publication? Is there enough detail to understand the experiment? (x/5)

### Data (20 points)

Is the data set complete? Are all the portions of the data needed to understand the analysis and results included in the report? (x/10)

Was the data taken carefully and accurately? (x/3)

Are all numerical values properly labeled (tables and main text)? Are there errors associated with every measured number used in data analysis? (x/2)

Are the data quoted to the correct number of significant figures, given the error? Are the errors appropriately rounded so that they do not have more than 2 significant digits? Do all numbers have units? (x/3)

Is the method used for obtaining the random and systematic error included, and described in enough detail? (x/2)

### Figures and Tables (15 points)

Are there appropriate figures and tables illustrating both the data and analysis/fits? (x/5)

Are the figures clear, with appropriately chosen axes? Are the minimum and maximum values of x and y chosen so that the features on the plot can be clearly seen? Are the axes labeled and do they have units? (x/5)

Do all the figures and tables have titles and captions? Are the captions complete? Is there at least 1 sentence in the text that properly cites each figure/table (i.e. "Fig.3 says...")? (x/5)

### Analysis (25 points)

Is the data compared with theoretical calculations, and are all comparisons between data and theory requested in the lab manual done? Are the results discussed, with correct conclusions drawn? **(x/15)**

Was the resulting error determined correctly, taking into account both random and systematic sources of error? **(x/5)**

Are error propagation calculations included? Are the equations that were used to do this given in the text? Are they done correctly, with enough detail for someone to repeat the calculations? **(x/2)**

Are the results compared using an appropriate numeric test (i.e. chi-squared)? Is the probability of the chi-squared distribution provided for the main results? **(x/3)**

### **Discussion (10 points)**

Are the results of the data analysis carefully and systematically discussed? If there are discrepancies between the data and the expected results, are these discussed in a correct and scientific manner? **(x/5)**

Does the discussion include both numerical and qualitative information? **(x/3)**

Are the results of numeric tests (chi-squared) discussed and appropriately used to reach a conclusion about physics? **(x/2)**

### **Conclusions (5 points)**

Is there a conclusions section? Does it state the main results, conclusions and appropriate remarks? **(x/5)**

### **NOTES:**

- details/suggestions for improvement