	Beginning (1 point)	Emergent (2 points)	Developing (3 points)	Proficient (4 points)
Communication/Organization	The writing is not concise nor clear. The report is not organized into sections or is missing sections or much of the information is not relevant. The report is not very readable and figures are not very organized logically.	The writing is somewhat concise and clear. The report is organized into sections and most of the information is clear and relevant. The report is somewhat readable and figures are mostly organized logically.	The writing is concise and fairly clear. The report is organized into sections and most of the information is clear and relevant. The report is readable and figures are organized in a logical manner.	The writing is concise and clear (max 4 pages). The report is organized into sections, and the information in each section is clear and relevant. The report is readable to an outside audience and figures are organized in a logical manner.
Data Visualization	There may be some missing graphs or tables. Raw data may be included where not necessary. Labels are missing or incorrect. Captions may be missing. Data is reported without uncertainties. Data reported or plots are unclear. Fits are missing.	All relevant graphs and tables included. Raw data may be included where not necessary. Some labels or units may be missing or incorrect. Captions may be missing. Uncertainties may be missing from some reported data. There may be some issues with units or significant figures. There may be some missing fits.	All relevant graphs and tables included and labeled. There may be some error in the way they are displayed and derived. Captions are included for each figure. Error is properly displayed. There may be some issues with units or significant figures. There may be some missing fits, or they may be incorrect.	All relevant graphs and tables are included and properly labeled. Captions for each figure are included and accurately descriptive. Error/error bars are properly displayed. Correct units are included everywhere and significant figures are reasonable. Fits or other aspects needed for analysis are included and described.
Data Manipulation & Error Analysis	Large aspects of error analysis are missing or performed incorrectly. Discussion of goodness of fit or interpretation of fit parameters is missing. Reported uncertainties are unreasonable. Analysis is performed using Excel. Physical context for fit parameters is missing or incorrect.	Mostly proper regression techniques are used with some discussion of the parameters of the fits. Some attempt to discuss goodness of fits. Reported uncertainties may be unreasonable or unjustified. Analysis uses Mathematica, Python or similar for fits, and uncertainty calculations. Physical context for fit parameters is missing or incorrect.	Proper regression techniques are used and discussed along with a full description of the parameters in any relevant fits. Discussion of goodness of fits. Reported uncertainties are mostly reasonable and justified. Analysis uses Mathematica, Python or similar for fits, and uncertainty calculations. Some attempt to synthesize with physical concepts.	Proper regression techniques are used and discussed along with a full description of the parameters in any relevant fits. Discussion on the goodness of the fits. Reported uncertainties are reasonable and justified. Analysis uses Mathematica, Python or similar for fits, and uncertainty calculations. Synthesis with the physical concepts the lab is meant to cover.

Discussion of Results	Analyzes important results and whether they agree with known or expected quantities. Attempts to analyze any discrepancies in the data. This analysis is mostly unphysical, and may make reference to "human error". Discussion responds to most questions presented in the lab.	Analyzes important results and whether they agree with known or expected quantities. For some results that do not agree, discusses the systematic errors that may lead to this disagreement. This analysis may make reference to the model, assumptions or approximations. Justifications are somewhat unphysical or unreasonable. Discussion responds to the questions presented in the lab.	Analyzes important results and whether they agree with known or expected quantities. For any results that do not agree, discusses the systematic errors that may lead to this disagreement. This analysis attempts to reference to the model, assumptions of the model or approximations of the model. Justifications are mostly clear and sometimes reasonable. Discussion responds to the questions presented in the lab. Some attempt is made to discuss the future of the experiment.	Analyzes important results and whether they agree with known or expected quantities. For any results that do not agree, discusses the systematic errors that may lead to this disagreement. This analysis makes reference to the model, assumptions of the model or approximations of the model to justify errors. Justifications are clear, well-explained and reasonable. Discussion thoughtfully responds to all the questions presented in the lab. Some attempt is made to discuss the future of the experiment.
Narrative Flow & Context (Introduction, Methods & Conclusion Sections)	Somewhat correct concepts and theory are included. Attempts to motivate the experiment objectives. Sets up the procedure with many unnecessary details, setup and measured parameters included, but are not be completely justified or explained. Included equations are often not relevant. Conclusion and abstract mostly summarizes the results of the lab. Some or many aspects are taken from the lab manual.	Mostly correct concepts and theory are included. Attempts to motivate the experiment objectives. Sets up the procedure with some unnecessary details, setup and measured parameters included, but may not be completely justified or explained. Included equations are mostly relevant. Conclusion and abstract mostly summarize the results of the lab. Some aspects are taken from the lab manual.	Correctly and sufficiently introduces concepts and theory. Motivates the experiment objectives. Sets up the relevant procedure, model for the system and measured parameters, including how these will be measured. Included equations are mostly relevant and explained. Conclusion and abstract fully summarize the results of the lab. Some unnecessary information is included. Communicates basic concepts, experimental procedures and results in their own words.	Correctly and sufficiently introduces most salient concepts and theory. Motivates the experiment objectives. Concisely sets up the relevant procedure, model for the system and measured parameters, including briefly how these will be measured. Included equations are relevant and explained. Conclusion and abstract fully and concisely summarize the results of the lab. Communicates basic concepts, experimental procedures and results proficiently and in their own words.