Your Title for the Lab

Your Name Lab Partner 1 Lab Partner 2

November 6, 2025

Abstract

What you did. What you found. Why it is interesting/important

1 Introduction / Theory

Approximate length: 0.5 - 1 page.

State the purpose of the experiment.

Give a summary of the theoretical background: List any important equations (derive them if it is a short derivation, otherwise cite and explain them). Make sure you define all the variables in the equations, such as: $F = ma$, where F is the applied force, m is the mass, and a is the resulting acceleration.

Discuss any relevant physical principles (e.g., Einstein's photoelectric equation comes from conservation of energy)

State clearly what quantities will be measured. These are your data.

2 Experimental Apparatus and Procedure

Approximate length: 1 - 1.5 page.

Provide a diagram or schematic of the setup (hand-drawn or computer-generated). The equipment instructions may be helpful here, and you can see the schematic of the wiring right on the faceplate of the apparatus.

Describe the apparatus and instruments used (with model numbers if relevant).

Describe the method followed, but focus on logic and reasoning, not a step-by-step "recipe".

Note any approximations, alignment steps, or important calibration details.

3 Data and Observations

Approximate length: 0.5 - 1 page.

Present the raw data in well-labeled tables (with units). Everything that you measured should appear here.

Include uncertainties on the values that you measured and note any systematic observations, e.g., instrument drift (I'm looking at you, Cullen), background noise, etc.

4 Analysis

Approximate length: 1 - 2 page.

Put your answers to the preliminary questions here and explain how you got them.

Your analysis of the simulation data will show up in a table here. Describe how you got the various entries, and if you were able to identify the unknown target, discuss that here also.

Show your plot you used to get H and W. Describe how you made the plot from your raw data, and how it relates to the photoelectric equation. Discuss how you did the fit (Excel, Python, by eye, etc), and how you extracted H and W from the fit.

Make sure that this section contains the answers to all the questions asked in the analysis section of the lab instructions.

Include a discussion of uncertainties and how you arrived at your estimates. Report final numerical results with uncertainties and correct significant figures.

5 Discussion

Approximate length: 0.5 page.

Compare your results with "accepted" values. Discuss whether the results support or deviate from expected physics.

Suggest possible improvements or extensions to the experiment.

6 Conclusion

Approximate length: 0.5 page

Summarize the experiment. Include the main findings (key results with uncertainty), whether the experimental goals were met, and the physical significance or insight gained.