

PHY 113 Lab

Thurs, 2-4pm

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Tutorial Hours: TWF 4-6pm, Th 5-7pm (Olin 103)

Introduction: In this course, we will put certain laws of physics to the test by *collecting data* relating to these laws, by *analyzing* the data with meaningful mathematical relationships, and by *presenting* our data and results in the form of a report.

Lab Reports: Reports are worth 20 pts each and are *due by the following lab period*. The breakdown for grading is as follows: Purpose (1 pt), Abstract (2 pts), Procedure (2 pts), Data (5 pts), Analysis (6 pts), and Discussion (4 pts). Except for the mathematical calculations in the analysis section (which you may write by hand *as long as it is legible*), you must *type and print out* your final report. However, I will award ½ pt extra credit to those who type up their analysis section. Here is what you should include in each section of the lab report:

PURPOSE: tell us WHY you did the experiment. Basically state in 1-2 sentences the all-encompassing reason for doing the lab.

ABSTRACT: describe WHAT you did in the experiment. That is, summarize in one paragraph the results of your experiment and what they imply. For example, a good abstract for the Equilibrium of Forces lab (Lab 4) would start out with a statement like "we balanced three forces about a single metal ring on a balancing apparatus and found them to add up to zero when the ring was centered and confined to rest." You would support this one-sentence claim with 1-2 lines of supporting data and analysis (i.e. reference the results and percent deviations you calculated), then conclude with a nice statement like: "Thus, our findings suggest that the first law of equilibrium of forces is an accurate model for describing the motion of a metal ring held at rest by three forces".

PROCEDURE: outline HOW you did the experiment. You may be tempted to write a lot for this, but all you need to include is a brief 1-2 paragraph outline of the tools/equipment you used and how you used them to find your data. For example, in the Equilibrium of Forces lab report, you would tell us how the balancing apparatus worked (you could draw a picture to clarify, but this is not necessary), and how you used it to find your force and angle data.

DATA/ANALYSIS: The contents of these sections differ from lab to lab and will be outlined for you during each lab period. Note that for these sections, you do *not* need a separate paragraph explaining your math and tables. Just the items outlined in class will be sufficient.

DISCUSSION: Provide a brief summary of your results and state whether you can safely accept (or reject) your hypothesis based on the percent deviations you determined. Also, be sure to detail at least 2-3 systematic errors present in your experiment and answer all reading questions (if any are present).

Late Policy: I accept late lab reports, but I will deduct 10% for *each week* the report is late (or a fraction of 10% for each day late.) A report is considered late if it is not turned in by 4pm on the day it is due.

Attendance: The lab period lasts *2 hours*; however, if you finish early, you may leave before the period ends. You are allowed *2 excused absences*, but you must make up the lab the *same week* as the absence. Please contact me or Eric Chapman to arrange a time for you to make up the lab. **Important Reminder:** it is very important that you do well in this lab, because *if you fail the lab, you fail the whole course!*

A little about me: Hometown near Los Angeles, CA; majored in Biophysics at Brigham Young University in Provo, UT; currently do research with Dr. Keith Bonin in optics and biophysics... and most importantly, I love teaching this course! Please email me or drop by Olin 103 if you have any questions!