

# Physics 407 Advanced Laboratory Spring 2019

## Instructors:

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## Required Material:

- A research lab notebook is required. These notebooks are 9x12 in, 150 numbered pages, a metal spiral binding, and thick paper quadrule pages. The bookstore stocks the AMPAD 22-157 notebook which is our standard. Leave several pages blank for an index.
- The required text for statistics is “Data Reduction and Error Analysis for the Physical Sciences”, by P. Bevington and D. Robinson, now in the Third Edition (you should have this from 307 lab. If not it is available at the bookstore and Cornell University has a link to a pdf copy: [http://hosting.astro.cornell.edu/academics/courses/astro3310/Books/Bevington\\_opt.pdf](http://hosting.astro.cornell.edu/academics/courses/astro3310/Books/Bevington_opt.pdf) )
- All the experimental write-ups are available on the web: <http://www.physics.wisc.edu/undergrads/courses/spring2019/407/>

## Grading:

- Two credit people typically will do four (4) experiments and four credit people will do 6-8 depending on the level of difficulty and time spent on the more advanced experiments.
- 80% of the grade will be based on the quality of your lab book.
- The remaining 20% will be based on a paper that you will submit based on one of the labs to be chosen by the instructor. You will review each other's papers (more on this later), and submit your revised paper. 5% of your grade is based on your reviewing effort, 15% on the paper itself.

## General Instructions:

- The scheduled lab time is 1-5 PM. If you need to leave the lab early, tell the Instructor and your lab partner.
- In order to start a new experiment you will have to understand the basic physics. At a minimum this will require reading and understanding the writeup. Usually you will need to consult other texts. Expect to spend about

four hours doing this before each lab. The Instructor will ask you basic questions to check your understanding.

- The lab notebook should be kept as a research notebook. This means that it contains all relevant data and observations so that you could write a paper about the experiment long after the experiment is finished.
- Never turn on any equipment until you have been checked out by an instructor.
- When leaving for the day, review your session progress with the instructor.
- Always leave your notebook in the lab on the designated shelf unless you have made an arrangement to take the lab book with you.