

Syllabus

Contact Information

Instructor: Jim Crumley
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Office Hour: 1 pm MTF days (or by appointment or just stop by)

Course Information

Lab: 1:00–5:00 pm W or R
Room: 112/118/146/319 Peter Engel Science Center
Web Site: <http://www.physics.csbsju.edu/jcrumley/370/>

Experiments

Two lab assignments and three experiments will be completed by each lab group during the semester. All groups will be doing the Rocket and Magnetopause experiments, and either the coupled pendulum, speed of sound, or torsion pendulum experiment. The experiments will be graded based on your lab notebooks. As well as recording your data and doing the necessary calculations, be sure to answer all of the questions from the lab in your notebook. The final project for this course is a formal lab report about one of your labs.

Course Schedule

Roughly half of the time there will be a lecture at 1:00 pm introducing the concepts behind a lab and tools needed for a lab. You are free to work on the experiments when you like as long as you turn the assignments in on time, though I recommend that you do at least some of your work during the scheduled lab periods. Note that points will be deducted for late assignments. Also, note the due dates for labs in the schedule below.

Lab Reports

Keeping a clear, complete lab notebook is an important scientific skill and much of your grade for this class will be based on your notebooks. Refer back to your Physics 191 and 200 lab manuals for a list of what must be included in your lab notebook. Note in particular, that you must include a Procedure section which fleshes out what you actually did. Also, note that though your partners and you are expected to work on the lab together, each partner must hand in a lab notebook for each experiment. Finally, though you should discuss your answers to the lab questions with your partner, each partner should answer the questions in their own words.

Formal Lab Report

The formal presentation piece of this course will be a formal lab report. Specific guidelines and topics will be provided later in the semester — see schedule below. Note that you should make your first draft a complete draft, so that I can give you the most helpful feedback.

Schedule

Dates	Lecture	Due
1/14-15	Introduction / Unix Tutorial	Pre-Survey
1/21-22	Rocket Lab / Mathematica Tutorial	Unix Tutorial
1/28-29	Magnetopause Lab	Mathematica Tutorial
2/04-05	Torsion Pendulum & Speed of Sound labs	—
2/11-12	—	—
2/18-19	—	—
2/25-26	—	1st of 3 labs
3/11-12	—	—
3/18-19	—	—
3/25-26	A few words on Formal Lab Reports	2nd of 3 labs
4/01-02	Sr. thesis topics	—
4/08-09	—	—
4/15-16	—	Draft of Formal Report
4/22-23	—	—
4/29-4/30	Drafts returned	3rd of 3 labs & Post-Survey
5/08	—	Formal Report & Thesis topic

Grading

The grade for this class will be based 25% on the formal lab report and 75% on the lab notebooks, tutorials, pre- and post-course surveys, and senior thesis proposals.