

UNIVERSITY OF CALIFORNIA, SANTA CRUZ
INTERMEDIATE LABORATORY
PHYS 133
SUMMER TERM 2012

COURSE SYLLABUS

INSTRUCTOR: Fred Kuttner
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SCHEDULE: TBD

LOCATION: 110 NS II

PREREQUISITES: Physics 101A

TEXTBOOKS: Physics 133 Lab Manual
A Practical Guide to Data Analysis for Physical Science Students, Louis
Lyons, Cambridge, Cambridge University Press, 1991.

BOOKS ON RESERVE IN SCIENCE LIBRARY:
Experiments in Modern Physics, Melissinos
Introduction to Error Analysis, Taylor

COURSE ORGANIZATION AND REQUIREMENTS:

The basic requirement for this course is to perform and write up three experiments: Atomic Spectra, Low Frequency Impedances, and Absorption of Gamma Rays. In order to complete these labs you will need to spend at least two afternoons per week in the lab. Signups for the experiments will be available during the first week. Detailed instructions for doing the labs and for the writeups are in the lab manual. In order to give you timely feedback, you must make reasonable progress. Therefore, the first lab writeup will be due at the end of the fourth week, the second writeup will be due at the end of the seventh week, and the last will be due at the end of the term. **Late writeups will have the grade reduced by one-third of a grade (e.g., from an A- to a B+) for each day they are late. No work will be accepted the last day of the term.** Early submission is of course allowed and will be to your benefit because of the feedback you will get. Your bound lab notebook, in which you will keep all of your data, apparatus sketches, etc., will also be due at the end of the quarter.

A second course requirement is to learn a little about error analysis. There is extensive material on error analysis in the lab manual. In addition, there is the Lyons book, and I will give several lectures on the subject. Among those three sources you should be able to grasp the material. You will find in your career that you will usually need to consult more than one source to grasp a new or difficult subject, so you might as well become accustomed to doing that now. You will be practicing error analysis as you do the experiments. Also I am assigning the following problems in the Lyons book as homework: Problems 1.4, 1.6, 1.8, and 2.4. **Detailed solutions to these problems will be due on February 2.**

I will also be giving a brief lecture on each of the three experiments. Lecture times will be decided during the first class meeting. I look forward to working with you, and I hope you enjoy your experience this quarter.

Fred