

Physics Department, California State Polytechnic University, Pomona



Physics 432L Spring 2002

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Course Description: Physics 432L is an upper division laboratory course in nuclear physics.

Course Homepage: You will find useful course-related material and links at the course homepage
<<http://www.csupomona.edu/~ajm/classes/phy432L>>

Conditions of enrollment: This course has the following prerequisites: PHY 235 & 235L (Modern Physics and Lab), PHY 315 (Second quarter of Electricity and Magnetism, PHY 322 (Second quarter of Mechanics)

Laboratory Manual: The Physics 432L Laboratory Manual is available at the Bronco Bookstore.

How to get help: My office hours are Mondays 2-3, Wednesdays 11-12, and Fridays 11-12. I will also be in the Physics Department Tutoring Center (3-213) on Mondays 11-12 and Wednesdays from 2-3. You can also come to see me during my lab class (Physics 133L in 3-209) on Tuesdays from 1-3:30 as long as you recognize that I will need to attend to my lab students' needs first. Finally, if you can't come during *any* of these hours, I will make an appointment with you for another time.

Lab Procedures: You will perform five experiments during the course of the quarter. You will work in partnerships, but each of you will write up your own lab report. Reports may, but need not, be submitted in a laboratory notebook. They should follow the following format

- *Brief intro/summary of method:* In a few sentences explain the purpose of the experiment and the methods used to obtain the data.
- *Data and Results:* Present all data and results in the form of a running commentary with embedded tables and/or graphs. Include uncertainties and/or error bars with all data and graphs. Tables should have captions and headings that clearly explain the data they contain. Graphs should have meaningful titles and clearly labeled axes with units.
- *Calculations and Questions:* Any required calculations should be neatly presented and explained. Answer all questions.

Lab reports are *due* one week after each experiment is completed.

- Reports not submitted within two weeks after the completion of an experiment will be considered *late*. I will deduct ten percent per week or portion thereof from the grade of late reports.
- I will assign a grade of zero to any reports not turned in by noon on Wednesday of finals week.
- To receive a passing grade in the course you must turn in completed lab reports for *at least* 4 out of the 5 labs.

Grading: Your course grade will be calculated using the following relative weights:

Reports (6)	80%
In-Lab evaluation	20%

Email list: I have set up an email list called "phy432L" (Note: no space between the "phy" and the "432L") to support this class. Anyone who subscribes to the list will receive all email sent to the list. I intend to use it to distribute important messages that shouldn't wait until the next class meeting. You can just "lurk" on the list (meaning that you simply receive messages) or you can also use it to initiate discussions on class material with other students in the course.

To subscribe to the list, send a message to "listproc@listproc.csupomona.edu" with no "subject" and a single line that reads

subscribe phy432L name [with your first and last name substituted for "name"]

Save the message that listproc sends back to you because it contains important information.

Academic Integrity: Please be aware of the statement on academic integrity in the University catalog. My strongest desire is to act as facilitator for your studies in physics. Accordingly, I operate on the assumption that all of our interactions are based on honesty and good faith. I have no desire to act as policeman, just as *you* should not have to be concerned about being treated fairly and with respect. Because our trust in each other is crucial to the effectiveness of our relationship, I take an uncompromising stance on the necessity for sanctions when it is violated.

Tentative schedule:

<i>Week</i>	<i>Experiment</i>	<i>Topic</i>
1 (Apr 2)	None	Introduction, safety, terminology, nuclear properties and phenomena
2 (Apr 9)	1	The Statistics of Nuclear Counting
3 (Apr 16)	2	Curve fitting and Calibration of the multi-channel analyzer (MCA)
4 (Apr 23)	2 (cont'd)	
5 (Apr 30)	3	Relative efficiency and K-40 half-life
6 (May 7)	4	Attenuation of radiation in matter
7 (May 14)	4 (cont'd)	
8 (May 21)	7	Soil sample analysis
9 (May 28)	7 (cont'd)	
10 (Jun 4)	7 (cont'd)	