Advanced Laboratory I
PHY 334 Spring 2005

Class Hours
Tuesday (SLN 81748)  Thursday (SLN 54908)
1:40-2:30 in PSF 306  12:40-1:30 in PSF 366
2:40-4:30 in PSF 377  1:40-3:30 in PSF 377
other hours to be arranged

Instructors
Tuesday: Gary Adams  Thursday: Martha R. McCartney
Office: PSF 430  Office: PSB 347
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Office hours: MW 4:00-5:30  Office hours: M 10:40-11:30
F 3:40-4:40  T 1:40-3:30
Help Study: TH 2:40-3:30  Help-Study: TBA
other times by appointment

Teaching Assistant
Jim Ball, JAMES.P.BALL@asu.edu, Office hours: TBA

Course Objective:
Development of experimental techniques and data analysis skills;
introduction to report writing; laboratory notebook usage. Students
should purchase two full-size bound laboratory notebooks (you should be
able to tape or paste 8.5x11 sheets into your notebook). Each student will
maintain his/her own laboratory notebook and will submit an individual lab
report.

Experiments:
Four to five experiments will be performed in groups of approximately four
students. The lab schedule is attached to this syllabus. Descriptions of
the experiments are available at

http://phyastweb.la.asu.edu/classes/phy334-mccartney/334labs.html
Location:
PSF306 (Tuesdays 1:40-2:30) and PSF336 (Thursdays 12:40-1:30) are reserved for any necessary meetings of the full class. These meetings will be announced as necessary. However, most weeks the entire three hour class time will be spent in PSF-377.

Email:
Your ASU email address will be used to disseminate information. Students are responsible for receiving it. Make sure that your ASU email address is functional and that your spam filter, if operating, allows emails from both instructors and from our TA.

Reference Books:
The following books have been requested on the Reserve List at Noble Library:
* Adrian C. Melissinos, Experiments in Modern Physics
  The 1966 version has both Thermionic Emission and Compton Scattering. There are also several copies available in PSF377.
* John R. Taylor, An Introduction to Error Analysis
* Bevington and Robinson, Data Reduction and Error Analysis
  If you plan to be an experimental physicist, it is worthwhile to purchase a personal copy of Bevington. It is a standard and often-used reference. In the 3rd edition, the rules for propagation of errors are on pages 48-49.
* J. J. Brehm and W. J. Mullin, Introduction to the Structure of Matter Noble’s Copy was listed as missing, but another has been ordered, and will be on reserve when it arrives. Brehm and Mullin contains useful information for both the X-Ray Physics and Compton experiments.

Grading:
The due dates for each lab are available on the Lab Schedule. For each lab, each student will turn in their lab notebook plus a 2-3 page summary of the lab, which should indicate where, in the lab notebook, all relevant data, calculations, graphs, etc. can be found. The lab grade will consist of the instructor’s evaluation of both the student’s lab notebook and the written summary. For the Astrophysics Labs, these instructions will be superseded by instructions from Paul Scowen.