

Physics 34000 (34200 lab) - Modern Physics Lab

Version 1.0 - August 22, 2011

- Instructor:** Jones/Lister
Email: mjones@physics.purdue.edu, mlister@purdue.edu
Phone: 765-496-2464 (Jones), 765-494-5171 (Lister)
Title: Modern Physics Lab
URL: <http://www.physics.purdue.edu/~mjones/phys34000>
Offering: Fall 2011, 1 credit.
Prerequisites: Phys 24100, Phys 24200
Text: Lab manual, available from BoilerCopyMaker, PLU: 6491
Description: Students will conduct some of the most important experiments that have guided our understanding of physics over the past century. In doing so they will develop their ability to collect and analyse experimental data, to interpret their results and to present their findings and conclusions drawn from them in a clear, concise and convincing way.
- Grading:** 10% – e/m lab report
10% – First lab notebook reading
15% – Photoelectric effect lab report
15% – Second notebook reading
15% – Compton scattering lab report
15% – Final notebook reading
20% – Final exam
- Exam:** Wednesday, November 30, 6:30 PM, SMTH 108/118
Part of the final grade will be based on a final exam. This will be a one-hour, multiple-choice test that will evaluate students' understanding of the modern physics concepts, laboratory techniques and analysis methods that are used to carry out the experiments performed in this lab.
- Disclaimer:** In the event of a major campus emergency, course requirements, deadlines and grading percentages are subject to changes that may be necessitated by a revised semester calendar or other circumstances beyond the instructor's control. Information about this course can be obtained from the web page or by contacting the instructor.

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Proposed schedule:

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|--------|-------------------------|---------------------------------------------------------------------------------|
| Week 1 | Week of Aug 22 | Introduction, propagation of errors, uncertainty |
| 2 | Week of Aug 29 | Start e/m experiment |
| 3 | Week of Sep 5 | Finish e/m |
| 4 | Week of Sep 12 | <i>Hand in e/m lab report</i> Start Stefan-Boltzmann experiment |
| 5 | Week of Sep 19 | Finish Stefan-Boltzmann experiment |
| 6 | Week of Sep 26 | Start photoelectric effect experiment |
| 7 | Week of Oct 3 | Finish photoelectric effect experiment |
| | Oct 7, 5:00 PM | <i>Hand in lab notebooks</i> |
| 8 | Week of Oct 10 | October break - no labs |
| 9 | Oct 17, 12:00 PM | <i>Hand in Photoelectric effect lab report</i> Start Franck-Hertz experiment |
| | Week of Oct 17 | |
| 10 | Week of Oct 24 | Finish Franck-Hertz experiment |
| 11 | Week of Oct 31 | Start Compton scattering experiment |
| 12 | Week of Nov 7 | Finish Compton scattering experiment |
| | Nov 11, 5:00 PM | <i>Hand in lab notebooks</i> |
| 13 | Week of Nov 14 | Start experiment of your choice |
| 14 | Week of Nov 21 | Thanksgiving break - no labs |
| 16 | Week of Nov 28 | Finish experiment of your choice |
| | Nov 30, 6:30 PM | <u>Final exam</u> - SMTH 108/118 |
| 17 | Week of Dec 5 | <i>Hand in lab notebooks and Compton scattering report</i> |