Course Information
PHYS 374 (4 credit hours)
Spring 2015. Faraday 233 10:00 – 11:50
Course website on blackboard

Instructor Information
Professor: Laurence Lurio (753-6470) (llurio@niu.edu)
Office location: La Tourette 202 (back of physics office)
Office Hours: Friday: 10:00 – 11:00.

Course Description: This is a one semester course in experimental methods of physics. Students will perform four experiments from areas of atomic, materials, nuclear and particle physics. Students will research the science behind each experiment, collect measurements, keep notes on their work, analyze their results, and write up and present their findings.

Intended Learning Outcomes: Students taking this course will learn how to apply the principles of physics towards making experimental measurements. They will learn how to independently research the background science for their experiments. They will obtain practice in making measurements in the laboratory, and will learn how to work with equipment in order to optimize their results. Students will also learn how to define their own research questions and how to reconfigure experimental tools so as to answer those questions. Students will learn basic techniques in data reduction and how to graphically display data. Students will learn how to apply statistical measures to data in order to produce the most accurate results and in order to estimate the confidence values and errors in their measurements. Students will acquire practice in presenting their work both as written reports and oral presentations.

Student Assessment:
Student grades will be based on attendance (5%), assessment activities and in-class exercises (5%) laboratory notes and preliminary data analysis (25%), oral presentations (25%) and written lab reports (40%). Students will work in two or three person teams on their experiments. Students in a group should maintain a single lab notebook, and an electronic copy of the lab notebook must be deposited through blackboard within one week of the completion of the lab.

Labs:
Students will complete four labs over the course of the semester. For each lab, the student is expected to perform independent reading on the subject of the lab, perform the experiment, present an oral summary of the results, and write a lab report. Separate guidelines for the lab reports and presentations are available on the blackboard page. Students will change lab partners with each experiment. For the final lab, students will propose a two week independent project to extend the results of the lab. There will be no report for the independent project, but students will present a summary of their independent project results to the class. Lab report will be written using the latex template supplied in class and an electronic pdf file must be submitted through SafeAssign on blackboard. A list of labs is available on the blackboard website.

Academic Integrity: Students are expected to hand in their own work for lab reports and oral presentations.

Students with disabilities:
If you need accommodation contact the Disability Resource Center (815-753-1303) drc@niu.edu. You should also contact me privately.

5-Jan	Introduction to experimental uncertainty	7	Grading and report writing techniques
12	Begin Lab 1	14	
19	MLK Holiday	21	
26	Lab 1 theory presentation	28	
2-Feb	Lab 1 results presentation	4	Begin Lab 2
9	Lab 1 report due	11	
16		18	Lab 2 theory presentation
23		25	Lab 2 results presentation
2-Mar	Begin Lab 3	4	Lab 2 report due
9		11	
16	Lab 3 theory presentation	18	
23	Lab 3 results presentation	25	Begin Lab 4
30		1-Apr	
6		8	Lab 4 theory presentation
13		15	Lab 4 results Presentation
20	Begin Lab 4 independent Project	22	
27	Lab 4 project presentation	29	
1-May		4-May	Last date to turn in late materials for credit