

1. Course

The goal of this course is to become accustomed to thinking as a scientist in a laboratory environment. To that end, we will explore electronics and instrumentation projects with an open ended student driven format. We will also practice thinking our way through practical problems. There is no textbook or manual for doing science; rather, we explore unanswered questions and with ideas and measurements, documenting our work along the way. The vast majority of work for this course will be in class, so it is imperative that you are consistently present in both body and mind.

2. Instructors

Dr. Landers
216 Allison Lab
844-4048

landers@physics.auburn.edu

Office Hours TU 8:00-9:00 AM

Additional office hours by appointment or chance... *knock on my door anytime!*

Feel free to contact me by email or phone at any (reasonable) time. I generally check my email every weekday and on some weekends.

Dr. Maddox
300 Allison Lab
844-4702

maddox@physics.auburn.edu

3. Graded Materials

- 40% In-Lab Performance (Quizzes, Lab Books, Attentiveness, Attendance)
- 20% Mid-Term Exam (written, in-class exam)
- 20% Term Paper
- 20% Final Oral Exam

4. Excused Absences

In the event of an *excused* absence, you must provide me with **formal** written documentation to support your absence. This includes a funeral notice, doctor's note, or some official document. The nature of this course is such that class attendance is imperative. Excused absences must be made up with additional lab time by appointment with Dr. Maddox. Tardiness and unexcused absences will count strongly against your laboratory performance grade.

5. Laboratory Notebooks

You will use a lab notebook to record everything that you do in class. This is your official record as a scientist, and should be treated appropriately. Notes must be taken in pen, and each day's work must be dated and signed. Lab books will be your only source of help for the quizzes, midterm and final. Suggested items to include in your notebook: discussion notes, ideas for approaches to problems, schematic diagrams of experiments, diagnostic information (voltages, currents, scope traces), and anything else you might find useful 10 years from now when you need to remember that lab class you took as an undergraduate.

6. Lab Performance

Your performance in the laboratory will be graded by both Drs. Maddox and Landers. In addition to intermittent quizzes and the maintenance of your lab book, this grade will be based strongly upon attendance, punctuality, helpfulness to others, care of equipment, and general focus on the work at hand. This grade is taken seriously, and we will not hesitate to give a low score for a student who behaves in a fashion detrimental to his/her own success or the success of others. Drinks in enclosed containers are allowed in the laboratory. Foods of any type are NOT allowed in the laboratory.

7. Term Paper

There will be a term paper due at the end of the semester that will fully describe one of the experiments you performed in class. It will be in the APS Physical Review format and will contain the following:

- an abstract giving an overview of the paper
- an introduction that includes the background and history of the measurement
- a description of the basic physics of the experiment (including figures)
- a complete description of the apparatus (including figures)
- a presentation of the raw data (including figures or tables)
- a results and discussion section (including figures or tables)
- a concluding summary
- full references in the APS format (there should be at least 10 *real* papers referenced)

Tentative Schedule (subject to change!)

<i>Date</i>	<i>Notes</i>	<i>Date</i>	<i>Notes</i>
1/08/07 Tuesday	Midterm Exam (tentative)	3/11/07 Tuesday	<i>Landers Away ?</i>
1/10/07 Thursday		3/13/07 Thursday	<i>Landers Away ?</i>
1/15/07 Tuesday		3/18/07 Tuesday	<i>Spring Break</i>
1/17/07 Thursday		3/20/06 Thursday	<i>Spring Break</i>
1/22/07 Tuesday		3/25/07 Tuesday	
1/24/07 Thursday		3/27/07 Thursday	
1/29/07 Tuesday		4/1/07 Tuesday	
2/31/07 Thursday		4/3/07 Thursday	
2/5/07 Tuesday		4/8/07 Tuesday	
2/7/07 Thursday		4/10/07 Thursday	
2/12/07 Tuesday		4/15/07 Tuesday	
2/14/07 Thursday		4/17/07 Thursday	
2/19/07 Tuesday		4/22/07 Tuesday	
2/21/07 Thursday		4/24/07 Thursday	Term Paper Draft Due
2/26/07 Tuesday		4/29/07 Tuesday	Catch up Day
2/28/07 Thursday		4/30/07 Wednesday	Term Papers Due
3/4/07 Tuesday		11:59 PM	<i>Late papers will not be graded!</i>
3/6/07 Thursday		Finals Week	Oral Exams