Physics 232 Section 1 Laboratory

Time
Tuesday 2:30-4:25 in Nielson 509

Instructor
Scott Carr  scarr6@utk.edu

Office Hours
Friday 11:15-12:15 (or by appointment) in Nielson 201 (Tutoring Center)
Office: Nielson 609-13

Class summary
This is a laboratory course designed to complement and enhance the concepts you encounter during your Physics 231 lecture. It’s a good chance to get your hands dirty and experience physics in a tangible way to help build intuition. We will initially cover waves and optics (lenses, refraction, and such) and finish with modern physics (spectra and radiation). The labs should be engaging and often challenging. If it seems too easy, talk to me and I’ll help you dig a little deeper.

Course Materials
We will be using the lab manual Contemporary Introductory Physics Experiments by Tennessee’s own Dr James Parks. Please have and bring your own copy of the manual with you to each session. Come prepared with writing utensils and a lab book. You may find a calculator useful, but it is not mandatory. Know that I will not be able to provide you with such things. Please read the lab theory and procedure before coming to the lab.

Behavior
Please come to lab on time and turn your lab in as you pass the front table. Cell phones, blackberries, ipods, zunes, laptops, DSis, PSPs, iPhones and the like will not be permitted in class, so please leave them in your bags or at home. Be respectful of me, yourself, each other, the equipment, and physics while in the classroom.

Attendance
Attendance to lab section is mandatory. I expect you to be in the lab to do the experiment, make observations, take data etc. You may NOT send someone to do it for you or assume your lab partner will take good enough data. If, for some reason, you cannot make it then you must inform me by email BEFORE the beginning of lab time. I will not accept lab reports from you if you were absent without letting me know first.
If you do let me know beforehand and it is an acceptable absence, then we will schedule a time for you to make up the lab as soon as possible. It’ll save both of us some work to not wait until the end of the semester to make it up. Acceptable absences include illness, familial disaster or tragedy, or velociraptor attacks.

**Lab Write-ups**

Each week you will turn in a write-up or report of the previous week’s experiment at the beginning of the lab. The purpose of these reports is to portray your experiment and results in as clear and concise a way as possible. The following is a guide for your reports, but you are free to write them as you please as long as they contain the necessary information.

All work turned in must be original. I expect each member of the lab group to turn in their own report that is unique. The data will be the same, but all other sections will be different. Similarly, do not copy anything from the lab manual. The manual is copyrighted material of the University of Tennessee and copying any part of it is illegal. Plagiarism will result first in a zero for that report (which cannot be dropped) and any further offense will be reported.

**Introduction**

This should, quite frankly, introduce the topic. A little bit about the history of the experiment, the purpose for the experiment, and some of the theory behind it. Introduce the concepts and equations you will be using. Make sure to include units for your variables!

**Procedure**

Tell me what you did. Do NOT just copy or paraphrase the lab manual. Make sure to tell me what you did, but keep it brief! I don’t need the intimate details...

**Data**

Put all data, results, and graphs here. Make sure to include the errors where applicable. If you need help with error analysis, please talk to me! For long tables of data (i.e. more than a page), make reference to them but append the data to the end of the report.

**Analysis**

This is the section where you state your results. Tell me how you came up with your results (which equations you used, etc) and if they agree with theory. Please be honest! I will not grade you down for data that disagrees with theory if you can explain to me what may have gone wrong. Also, be sure to state possible sources of error in the experiment as well as how they may be minimized in the future.

**Conclusion**

What do your results say? What did you learn? Why does the world care about your results?
Grading Policy

95% of your grade will be your lab write-ups while the other 5% will be timeliness. For each class you come to on time (on time means in the room at 2:30), you will get 0.5% towards your overall grade. Do the math and twelve labs means that you can get a total of 6% for your attendance. Yes, there is your extra credit. I will drop the lowest lab score at the end of the semester.

Late lab write-ups will have 10% subtracted from the final grade. This means that it’s “possible” to get an A on a late write-up, but I really wouldn’t bank on it. The labs themselves will be graded as follows out of 100pts:

- Introduction: 5pts
- Procedure: 5pts
- Data: 30pts
- Analysis: 40pts
- Conclusion: 10pts
- Questions: 5pts
- Units: 5pts

When I grade, I’m not looking for things to be broken down exactly like this, but I do expect the necessary information to be your report.

In Conclusion...

I’m really excited for this course and this semester. If each of you leaves this semester with an increased knowledge of and liking for physics, then I’ve done my job. I don’t expect you all to become physicists, but I do expect you to put forth effort and try to enjoy this interactive learning experience.