Physics 231 Laboratory Syllabus  
Fall 2009, Section 007  
Dr. Mannella  
M12:20-2:15, Nielsen 510

Lab Instructor: Allison Reagan (areagan3@utk.edu)  
Office: M105, Nielsen Physics Building  
Office Hours: T11:15-12:15 (tutorial center) or by appointment

Text: Contemporary Introductory Physics Experiments, Dr. James E. Parks

Lab Schedule:

Aug 24: Electric Fields  
Aug 31: Ohm's Law I  
Sept 7: No Labs (Labor Day Holiday)  
Sept 14: Ohm's Law II  
Sept 21: Wheatstone Bridge  
Sept 28: Resistance vs. Temperature  
Oct 5: Electrical Energy  
Oct 12: E/M Ratio  
Oct 19: Oct Ampere's Law  
Oct 26: Oscilloscope  
Nov 2: RC & RL Circuits  
Nov 9: AC Circuits I  
Nov 16: AC Circuits II  
Nov 23: Lab Final/Makeup

Grading: Lab grades will account for 30% of the overall Physics 231 grade. As per university policy, if the laboratory portion of a course is failed a student will not be allowed to pass the course. Laboratory grades will be calculated according to the following percentages:

Lab Reports- 80%  
Class Participation- 20%

Lab Reports: Every week a lab report will be submitted at the beginning of class for the previous week’s lab; there will be a total of 12 lab reports. Lab reports should be typed, with the following sectional format:

- **Cover sheet:** This page should have (1) the title of the experiment, (2) your name, (3) your partner’s name, (4) the course name and number, (5) your section number, (6) the name of your lab instructor, (7) the date the experiment was performed, and (8) the date the report is submitted. *(5 points)*
• **Purpose:** A sentence or two stating the objectives of the lab- what is being proved and how? *(10 points)*

• **Abstract:** Explanation of theories and formulas used. *(15 points)*

• **Materials and Methods:** Brief explanation of equipment and procedure used to obtain data towards the objective. *(10 points)*

• **Results:** This is the section for raw experimental data. It should include copies of data tables, measurements, and calculations, and does not necessarily need to be typed. *(15 points)*

• **Analysis:** Discussion on what the data means; this section should include any graphs or charts used to interpret the data, with a clear explanation of what they mean. All graphs and charts should be clearly titled and labeled with units, axes, etc. *(15 points)*

• **Conclusion:** What did this lab prove, and (most importantly) what was learned? If the results weren’t as expected, analyze what went wrong and what could have been done differently. *(15 points)*

• **Propagation of Errors:** Reference the lab manual for the appropriate way to do an error analysis. *(15 points)*

Each page of the report should be numbered with the student’s last name, and if any sources beyond the lab manual are used to write a report then they should be cited appropriately in a bibliography. While the experiments will be conducted in pairs and students are encouraged to work together on all stages of the experiment, lab reports should be written and submitted individually.

**Class Participation:** This portion of the grade will come from quizzes, lab questions, and attendance. There will be random quizzes given and/or questions assigned at the beginning of class every week. Assigned questions can be submitted the following week at the beginning of lab, but they should be separate from the lab report with the student’s name, the date, and the experiment performed clearly written at the top of the page.

**Attendance Policy:** Class starts at 12:20 on Mondays in room 510; if a student is more than 20 minutes late without a reasonable excuse then they will be asked to leave and will not be allowed to perform the experiment. If a student will be unable to attend a lab for any reason then they should inform the instructor as soon as possible, preferably at least one week before the lab; if the lab has already passed then there must be a documented emergency. In the case of prior arrangement or emergency, the student may be allowed to make up the lab the same week it was given; this is subject to the instructor’s discretion and is not automatic, nor is it to be expected. If a student’s excuse is deemed invalid or if the student can’t make up the lab the same week for any other reason, they will have to wait until the end of the semester. Students will be allowed to make up one lab and one lab only during the last week of school. If a student was not present for a lab then they will only be allowed to turn in a report if they were approved to make up the missed lab. Using someone else’s data without personally conducting the experiment is strictly prohibited, and any attempt to do so will be treated as plagiarism (see General Policies).
Late Work: Lab reports and assignments are due at the beginning of class. Reports and questions submitted after class begins will have 10 points deducted for being late, and 10 more points will come off for each additional class period after that. Quizzes will be given during the first 10 minutes of class, and no one will be allowed to make up a quiz after the allotted time has passed.

General Policies:

- Students with disabilities should let the instructor know as soon as possible so that necessary arrangements can be made.
- Please turn off all cell phones and other electronic devices prior to the lab. If a phone call or text needs to be received or sent during lab time, the student needs to wait until it is possible to leave the room for a break without disturbing the other members of the class.
- Cheating and plagiarism will not be tolerated. Every week, each person should submit an individual lab report and any other assignments in their own words. Calculations and graphs can (and should) match for lab partners, but the rest of the reports should be done alone unless otherwise instructed. This applies mostly to formal lab reports, but there may be instances on informal lab reports as well where a written analysis is called for. The first time an instance of plagiarism happens, all students involved will receive a zero on that assignment without a make up option. If it happens again, the student(s) will be reported to the school for administrative action.
- If a conversation or gesture is engaged in that could possibly make other students uncomfortable or create a hostile learning environment, the offending student(s) will be asked to leave the lab and will receive a zero for that day’s work. Continued failure to adhere to university policy regarding equal opportunity and students’ rights will result in lab failure and administrative action.