4BL-004: Physics Lab for Scientists and Engineers II
Spring, 2005

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Co/Prerequisites: PHYC 4B (and all prerequisites therein)

Course description: This is a calculus-based physics lab covering the topics of electricity and magnetism with an emphasis on DC and AC circuits.

Weekly schedule:
4BL-004 (lab, CRN 31768): F 2pm–5pm in S158
Office hours: M 11am–12noon and R 1pm–2pm, or by appointment

Lab procedure
Each week, we will perform one lab. The write-up will be handed out the previous week. Read the lab write-up in advance of arriving to lab. I will begin each lab with a brief lecture and demonstration of the lab. Students will then perform the lab. Generally, this involves performing the activities in the lab write-up (including answering all of the questions) and writing the results in your lab notebook. After you complete the lab, you must return the lab station to the state it was in before you arrived. This includes putting away any equipment that you took out exactly as you found it.

Students are expected to keep a lab notebook for the course. All data, observations, comments, analysis (including answers to any of the questions), and conclusions should be written in blue or black ink in the lab notebook. Further details of what is expected for the lab notebook are in a separate handout. All data acquisition and analysis should be completed during the lab period. It is important to have a complete set of data and to make sure that it makes sense by performing a complete analysis before you leave the lab, since you will not be able to reenter the lab after the lab period is over. Students will then have the option of keeping the lab notebook for up to one extra day in order to answer any additional questions asked in the lab write-up, write the conclusion, and otherwise complete the assignment.

I reserve the right to check each student’s lab notebook before s/he leaves the lab to verify the existence of the data and analysis, and to verify that the notebook is being used properly. In such cases, my approval of your lab notebook is not a guarantee against errors in the data or the data analysis, only that the necessary data acquisition and analysis has been performed.

The lab notebook must be turned in by the Monday following the completion of the lab. Students are responsible for making sure I get the lab notebook by that time (either turn it in to me personally or arrange to have it placed on my office desk). Lab notebooks will be returned to you at the beginning of the next lab with the previous lab graded. Late notebooks
will be severely penalized. I will “forgive” a total of 2 late days during the semester and not impose a penalty — after those days have been used up, you will lose 20% for each day late. Labs turned in after the next lab has been performed will not be graded.

Exams

There will be two exams during the semester (a midterm and a final). For each exam, you will be allowed to use your lab notebook. No other written materials will be permitted, including the lab write-ups. The first exam will cover the experiments performed up to that point, and the second exam will cover all experiments between the first exam and the second exam. Exam questions may involve the theory behind the lab, details of the lab procedure, the functionality of the lab equipment (what it does and how it works), and data analysis. You may be called upon to perform an experiment. The best preparation for the lab exam is to actively participate during the labs and to do the lab reports. Your lab partner(s) will be doing you no favor by doing the work for you.

Attendance

Attendance will be taken at the beginning of each lab. Attendance in and of itself will not be counted towards you final grade — however, if you miss a lab, you will receive a zero for that lab. The lowest lab score during the semester will be dropped, so students can afford to miss one lab (although you will still be responsible for the material covered in that lab on the exam). Students are responsible for all material covered and announcements made during the lab whether they attend or not. Excessive absences will severely affect your grade, and may also be grounds for being dropped from the course.

Final grades

The final lab grade will be based on the exams and the lab notebook in the following proportion:

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<table>
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<tbody>
<tr>
<td>Exams</td>
<td>50% (2 × 25%)</td>
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<tr>
<td>Lab notebook</td>
<td>50%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
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In lieu of a curve, letter grades will be assigned as follows:

- A Above 90%
- B 80%–90%
- C 65%–80%
- D 50%–65%
- F Below 50%
Policies

Students are expected to arrive on time to lab, and to behave themselves while in the lab. Proper behavior is especially critical in a laboratory, as the equipment you are using can be damaged or can seriously hurt you or someone else if it is mistreated. Students are expected to comply with all safety regulations.

Each student must turn in his or her own work. Naturally, it is to be expected that lab partners will consult one another when performing the experiment and writing up the lab notebook. However, each student’s lab notebook must be in his or her own words.

Exams are closed book and closed notes (except for the lab notebook). Students cannot have any materials other than those necessary for taking the exam (pencils/pens, erasers, calculator, rulers, ...). Students are required to do their own work during the exams: there is to be no communication of any kind, nor sharing of any materials during an exam. Students caught cheating on an exam will receive a zero. Exam seating will be assigned.

DSPS statement

If you need course adaptations or accommodations because of a disability, if you have emergency medical information to share with me, or if you need special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible. My office location and hours are given at the top of the syllabus.

You may also contact DSPS. They can be reached at:

DSPS
Rosenberg Library — R323
50 Phelan Avenue
San Francisco, California 94112
(415) 452-5481 Voice
(415) 452-5451 TDD
(415) 452-5565 FAX