Physics 350 (aka 313R)
Advanced Experimental Techniques
Winter 2007

Instructor:
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Office hours: 9:30-10:30 MWF and by appointment

Section 4: Tue. 8:00-10:50, Thu. 8:00-11:50
Room: C435 ESC
TA: Jacque Jackson
Ryan Tanner
Section 5: Tue. 1:00-3:50, Thu. 1:00-4:50
Room: C435 ESC
TA: David McNay
David Silvers

Course Objectives: In this course you will gain experience in the following

1. Designing, building, and interfacing experimental apparatus.
2. Problem solving in complex physical/electronic systems.
3. Making involved physical measurements and analyzing experimental results.
4. Documenting in your lab notebook your procedures and methods – your results and analysis.
5. Presenting your work in writing and through oral presentations.

Time in the course
This course is a 3-credit class. It is expected that you will invest approximately 9-12 hours/week in the class during a semester. 2/3 of this time will be in the scheduled lab period. The remainder is expected to be spent out of class time in preparation for coming labs or completing writing assignments.

Course Grading Policies
This list shows the approximate weighting for grades. It may be adjusted as the semester develops:

<table>
<thead>
<tr>
<th>Graded activity</th>
<th>%</th>
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<tbody>
<tr>
<td>Attendance at all class sessions</td>
<td>20</td>
</tr>
<tr>
<td>Lab projects and reports</td>
<td>40</td>
</tr>
<tr>
<td>Formal superconductivity report</td>
<td>10</td>
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<tr>
<td>Group project and presentation</td>
<td>20</td>
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<tr>
<td>Professionalism</td>
<td>10</td>
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Absences and coming late
On time attendance at all scheduled class times is required. This is particularly critical in this class where you will be working as partners. If you want special consideration for an emergency that keeps you from participating in class, you must notify the instructor before the event, if at all possible. If you do need to miss a class period, you will be required to repeat, out of class, the part you missed. In some cases this may not be possible and you will miss credit. Phone or email messages are both considered adequate prior notification.

Late assignments
Any assignments given are due at the beginning of class on the day indicated on the schedule (which is subject to modification). Late assignments will lose 5% for each day or portion of a day late.

Written assignments
Though you work as partners, all writing is to be done individually.
1. Lab notebook on temperature measurement.
2. 2-page report on temperature measurement.
3. Formal report on superconductivity measurements.
4. Lab notebook on noise and lock-in amplifier measurements.
5. Lab notebook on vacuum technology.
6. Prospectus for student-designed experiment.

Handouts will be given out in class with details on these assignments.

**Oral presentation**

You will give a 15-minute group oral presentation about your student-designed group project. This presentation will be given during the final exam period (Wednesday, Aug. 16, 7:00-8:50 PM).

**Professionalism**

Everyone will start out with full credit for professionalism. You can lose that credit by unprofessional behavior such as nagging the TA over trifling grading issues or by allowing your lab partner to do all the work while you watch. It is not expected that you just accept errors or perceived inequities in the grading or class procedures, but it is expected that you will bring those problems up in a professional manner.

**Honor Code Standards**

In keeping with the principles of the BYU Honor Code, students are expected to be honest in their academic work. Academic honesty means, most fundamentally, that any work you present as your own must in fact be your own work and not that of another. Violations of this principle may result in a failing grade in the course and additional disciplinary action by the university.

Students are also expected to adhere to the Dress and Grooming Standards. Adherence demonstrates respect for yourself and others and ensures an effective learning and working environment. It is the university’s expectation, and my own expectation in class, that each student will abide by all Honor Code standards. Please call the Honor Code Office at 422-2847 if you have any questions about these standards.

**Preventing Sexual Discrimination or Harassment:**

BYU’s policy against sexual harassment extends not only to employees of the university but to students as well. If you encounter sexual harassment, gender-based discrimination, or other inappropriate behavior, please talk to your professor, contact the Equal Employment Office (D-240C ASB, 422-5895 or 367-5689), or contact the Honor Code Office (4440 WSC, 422-2847).

**Students With Disabilities**

BYU is committed to providing reasonable accommodation to qualified persons with disabilities. If you have a disability that may adversely affect your success in this course, you should contact the University Accessibility Center (1520 WSC, 422-2767). Services deemed appropriate will be coordinated with the student and instructor by that office.

**Children in the Classroom**

The serious study of the physical and mathematical sciences requires uninterrupted concentration and focus in the classroom. Having small children in class is often a distraction that degrades the educational experience for the entire class. Please make other arrangements for child care rather than bringing children to class with you. If there are extenuating circumstances, please talk with your instructor in advance.