

# Physics 275 Syllabus - Spring 2006

## Professors Richard Greene and Fred Wellstood

### Official Course Description:

*PHYS275 (PermReq) Experimental Physics I: Mechanics, Heat and Fields; (2 credits) Grade Method: REG/P-F/AUD. Prerequisites: (PHYS 171 or PHYS 161) and PHYS 174. Corequisite: PHYS 272. Methods and rationale of experimental physics. Intended for physics majors and science and engineering students who desire a more rigorous approach. Experiments chosen from the areas of mechanics (from PHYS 171), gas laws, heat, and static electromagnetic fields. Theory and applications of error analysis. CORE Distributive Studies Physical Sciences Laboratory Course only when taken concurrently with PHYS 272.*

### What the course is about:

Physics 275 is the second course in the introductory Physics lab sequence PHYS 174-275-276. The course is intended for physics majors and also for science and engineering students who desire a more rigorous introduction to experimental science. Experiments are mainly chosen in the general area of mechanics. A major component of the course concerns understanding error analysis, both learning how to do it and appreciating what a useful tool it is. The Lab meets for four hours each week in Room 3203 of the Physics Building. Roughly three hours of this time will be spent working on the lab and one hour in discussion.

**Web Site:** To get the latest information on Physics 275, check the web site at:

<http://www.physics.umd.edu/courses/Phys275/index.html>

(Note: As of 12-31-2004, the site still needs to be updated.)

### Lab sections:

Lab section	Day	Time	Instructors
0201	Monday	1-4:50 PM	Wellstood
0301	Tuesday	2-5:50 PM	Greene
0101	Wednesday	2-5:50 PM	Wellstood
0401	Thursday	2-5:50 PM	Greene

### Course Instructors:

#### [Prof. Richard Greene](#)

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#### [Prof. Fred Wellstood](#)

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\* **Office Hours:** You can try stopping by our offices at any time, but if you can't find us, make an appointment by e-mail.

\* **Prerequisites:** The prerequisites for the course are Physics 174 and Physics 171 (or Physics161).

\* **Co-requisites:** You must also be enrolled in Physics 272 in the same semester in order to get CORE lab science credit.

" **Texts:** "[A Practical Guide to Data Analysis for Physical Science Students](#)" by Lyons.  
"Physics 275 Lab Manual" - Fall 2004 edition

\* **Arriving late to class:** Classes at Maryland begin right on the hour. It is important that you arrive on time so that you can get instructions for the lab and have time to finish. If you arrive more than 10 minutes late, you may not be allowed into the lab and will have to make it up during another section.

\* **Making Up Missed Labs:** You should make every effort not to miss your regularly scheduled lab. If you miss your regular lab section, you should make that lab up by going to another section that week or by scheduling a makeup lab with the TA before your next lab.

\* **Teaching Assistant:** TBA  
phone number  
e-mail  
office

\* **Grading:** 40% Spreadsheet Lab Report  
10% Homework  
20% First Practical Exam  
20% Second Practical Exam  
10% Class Participation

*Missing one Lab (and not making it up ) will cost one letter grade in your final grade. Missing one homework set will cost one-half of a letter grade in your final grade. Final grades will be computed based upon the above weightings. Standard grading will be followed (A is 90-100, B is 80-90, etc.) unless the class's distribution of scores is unusual, in which case a standard curve will be used.*

\* **Homework** is assigned at the end of each Lab. You will turn your homework and any revisions to your lab by submitting an Excel spreadsheet file as an e-mail attachment to WebCT. You can turn in your report and homework anytime during the week, but by no later than 6 PM on the Sunday of the week in which you had the lab. Corrected homework should be available the following week.

\* **No credit will be given for late homework unless you are seriously ill and provide a written note from your physician.**

\* **General Comments on the Lab report and Homework:**

Finishing all the lab reports and Homework sets is very important. If you can't completely finish a lab and homework set, it is still important to turn in what you do have. When you are working on your report or homework, feel free to discuss among yourselves to try to figure out what is going on. By all means get together in small groups and discuss. However, do not use these discussions as an excuse to copy someone else's report or homework solution, or let someone else copy yours. That is cheating and is strictly forbidden. It is also very self-defeating since the other part of your grade will come from tests. The right way to proceed is to first work through the report and problems by yourself and arrive at a definite answer. With this preparation you can then discuss intelligently with your colleagues and see if you have missed something essential. Of course, you can always ask one of your instructors.

**One final thing**, if you miss something fundamental in a lab or test, you will probably be assigned extra problems to solve until you master the concept.

\* **In case of Bad weather:** Winter in the Washington Metro area can bring large snowstorms that make travel dangerous. Should this happen and the University is closed as a result during a scheduled lab, class will be cancelled, and we will most likely reschedule the lab for the following week. Closing is announced over local radio and TV as well as on the [University's homepage](#).

## Important Dates for Spring 2006

Jan 25	First day of Spring Semester
Jan 25 - 26	Experiment 1 - <i>Introduction and Diagnostic</i> (Wed. & Thurs. sections meeting)
Jan 30 - Feb 2	Experiment 2 - <i>Dice</i> (plus <i>Experiment 1: Diagnostic</i> for Mon/Tues sections)
Feb 6 - 9	Experiment 3 - <i>Decay</i>
Feb 13 - 16	Experiment 4 - <i>Position, Velocity and Acceleration</i>
Feb 20 - 23	Experiment 5 - <i>Free Fall</i>
Feb 27- Mar 2	Experiment 6 - <i>First Review</i>
Mar 6- 9	<b>First Practical Exam</b>
Mar 13 - 16	Experiment 7 - <i>Vibrating String</i>
Mar 20 - 23	<b>Spring Break</b>
Mar 27 - 30	Experiment 8 - <i>Simple Harmonic Motion</i>
Apr 3 - 6	Experiment 9 - <i>Anharmonic Motion</i>
Apr 10 - 13	Experiment 10 - <i>Measuring g with a Pendulum</i>
Apr 17 - 20	Experiment 11 - <i>Second Review</i>
Apr 24- 27	<b>Second Practical Exam</b>
May 1-4	<i>Make-up</i>
May 8-11	<i>Make-up</i>
May 11	<i>Last day of classes</i>

**IMPORTANT NOTE:** The Wednesday and Thursday sections will meet the very first week of classes. The Monday and Tuesday sections will meet starting on the following week and during their first meeting will complete Experiment 1 (which is just a short diagnostic of Physics 174 skills) and Experiment 2, which involves probability. The idea is that in this way, we will have enough flexibility in the remainder of the semester to make up a weeks worth of labs if school is shut for an extended time due to weather.