

## Physics 212 – Physics for Science and Engineering II

Section 1, Spring 2009

101 Lewis Hall, Monday, Wednesday, Friday, 2:00 – 2:50 PM

Prof. Mihai Bondarescu

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NOTE: PHYS 222 (Lab Physics for Science & Engineering I) is a co-requisite for PHYS 212. If you are not enrolled in PHYS 222, you must register for it or you will be dropped from PHYS 212. If you have already successfully completed PHYS 222, let me know.

### **Office Hours:**

Tuesday 12:15-1:00, 126 Lewis Hall

Thursday 12:15-1:00, 126 Lewis Hall

My main office is Room 5, Kennon.

If you need to see me outside of office hours, please make an appointment.

I am glad to work with you over the phone. I will also answer email inquiries although I cannot guarantee a timely response.

### **Textbooks:**

-- *Fundamentals of Physics, 8<sup>th</sup> Ed.*, Halliday, Resnick, and Walker We will cover Chapters 21-36. This is the official textbook of the course.

-- *Thinking Physics*, Lewis Carroll Epstein

### **Grading:**

30 % Final Exam

18 % each 2 Midterm Exams

20 % total Quizzes

12 % total Homework Assignments

2 % Class Participation

*Students will be called on in class. You should be ready to respond to simple questions on the lecture material.*

The homework assignments will primarily be Web based, although hand-written problems may be assigned from time to time. The web based part will be completed through the WileyPLUS web site at the following URL:

<http://edugen.wiley.com/edugen/class/cls94102/>

Go to this web site and register. You are required to do this as the majority of our homework assignments will be web-based. When you purchased your textbook, you

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should have also gotten information on logging into the WileyPLUS system. (Wiley is the publisher of the textbook) Homework assignments will be posted on the Blackboard site, and on the Wiley web site for the course. Check both BLACKBOARD and WileyPLUS for assignments by 11pm day of class.

You must have a WileyPLUS account in order to get a grade in this course.

Homework is due one week from the day it is assigned. The deadline for homework is the end of class for hand written problems and noon (12 PM) for web-based problems.

Note that **the total Quiz score is the same as a midterm exam.** I want to reward those students who work hard over the course of the semester and stay on top of the material.

### **The grading scale:**

A: 100 – 80, B: 80 – 70, C: 70 – 60, D: 60 – 50.0 F < 50.0

### **Learning Objectives:**

After completing this course, the student should understand the role of forces, fields, and potentials in solving problems in electricity and magnetism. They should also understand the linkages between electricity and magnetism, and the principles underlying the generation of electromagnetic waves. The student should grasp the wave nature of light, and the role geometric optics plays in describing image formation. They should develop the skill to use general mathematical laws and logical reasoning to work complex physical problems requiring multi-step solutions.

### **Preparation:**

Learning any subject requires seeing it from many different viewpoints. One view is given in the lectures, the homework is another view, and the textbook can be considered a third. For the lectures to be useful, the student should have some familiarity with the subject matter beforehand. *Read the chapters before the lecture. Be familiar with the terminology* so that you can recognize the subjects when they are introduced. This will help you get more out of the lectures. *Also, students may get asked simple questions about the lecture material as part of the class participation grade.*

In this class, the goal is to make you technically competent at solving physics problems. This means that the mathematical framework of the subject will be stressed over the conceptual aspects. I believe that conceptual understanding is important, however, and I encourage the students to consult other books and media for this type of material.

### **Rules:.**

Attendance is expected.

Be prepared to show your student ID or Driver's License on Exam days.

You may use the Student's Solutions Manual; *HOWEVER use of the Instructor's Solutions Manual is considered cheating. Students who use it will be subject to formal academic discipline charges*

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We will attempt to have review sessions outside of class before each of the three exams.

Physics is a challenging subject. You will be exposed to problems you can't solve and, in some cases, you are not expected to. The grades will be rescaled appropriately to compensate for this.

You are free to choose any problems from any source and turn them in for additional credit.