

# PHY2049, Physics for Engineers & Scientists-II

Fall 2004, Tu-Th 9:00 AM - 10:15 AM, Section 0003, MAP 0359

Instructor: Dr. Aniket Bhattacharya

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Office Hours: Tu, Th 10:30 AM-12:00PM

or by appointment

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## • Course Outline & Objectives:

PHY 2049 (3-credit hours) is the second part of a three-semester sequence in introductory physics offered to engineering, other science and pre-professional majors who have the appropriate background in mathematics. The primary objective of the course is to prepare students with fundamental knowledge of physics and obtain skills for higher science and engineering courses. Mathematics is the language of Physics and is required for quantitative understanding and prediction of the world around us. The course uses algebra, trigonometry, differential and integral calculus. It is vital that you are familiar with these concepts and that you can apply them to problem solving!

## • Prerequisite:

We will be using the concepts of vectors, mechanics *etc.* from PHY 2048. We will assume that you know the contents of PHY 2048.

## • Course text & study materials:

- *Fundamentals of Physics, Seventh Edition, 7/E* (required) Halliday, Resnick, and Walker; *John Wiley & Sons*. The course will cover Chapter 21 - Chapter 36.
- A student solution manual of selected problems is also available, but is not required.
- A **WebAssign homework access card** must be purchased at the UCF Bookstore.

## • Course Organization & expectation:

The course is quite intense and it will require you to invest considerable amount of time in studying and problem solving. The course will consist of a set of class lectures with demonstrations. Ideally, class time will be used to clarify the concepts that you have read in the text and to work examples to show and help avoid common pitfalls. To obtain maximum benefit from this course you should read the materials before and after it is covered in class. It is very difficult to catch up if you fall behind. Experience has shown that problem solving done in class is helpful for everybody only if the majority of the students are familiar with the topic. **Class attendance** is very important since some of the quizzes, test questions will be drawn from the class lectures, demonstrations, and discussions. Thus, reading the material prior to class attendance is not only required but will be helpful to yourself, and also to the rest of the class.

## • Homework:

Homework will be assigned, submitted and graded online through **WebAssign** ([www.webassign.net](http://www.webassign.net)). A new assignment will be posted approximately each week. There will be a small cost to get a **WebAssign**

**Access Code.** You will be able to access Webassign for the first 1-2 weeks of classes without the access code, but don't delay too long as there is a hard deadline to have it entered. Individual extensions for the homework can be given but will only be done rarely. Please drop by my office if you are having difficulties in doing the homeworks.

- **Quizzes:**

In general the quizzes will not be announced in advance. Quizzes will be based on previously covered material up to and including the quiz day reading assignment and lecture. It is anticipated that 8-10 quizzes will be given during the semester. The best 6-8 scores will be used to compute your quiz grade. There will be no **make-up quizzes**.

- **Examinations:**

There will be **3 mid-term exams and a comprehensive final exam** in this course. All exam grades count toward your final grade.

**FINAL EXAM: Tuesday, April 26, 2005, 7:30 AM - 10:20 AM**

- **Methods of evaluation & Grades:**

The **final grade** will be based upon Homework, in class Quizzes, three Midterms, and the comprehensive Final examination. Tests and quizzes will assess student's grasp of physics concept and analytical problem solving skills, using basic concepts of algebra, trigonometry, geometry, and differential and integral calculus. Students are expected to be proficient in basic mathematics. The **final letter grade** will be determined based on the following proposed breakdown:

<b>Homework (Webassign)</b>	<b>Quizzes</b>	<b>3 Midterms</b>	<b>Comprehensive Final</b>
10 %	10 %	$20\% \times 3 = 60\%$	20%

**Final grades** will be given according to the following scale:

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>F</b>
85% and above	75-84 %	60-74%	50-59%	less than 50%

- **Policies:**

1. For missed work, please refer to the attached "PHYSICS DEPARTMENT MISSED WORK POLICY" disclosure.
2. Questions regarding returned quizzes or tests must be brought to the instructor's attention within 6 days.
3. Picture ID is required in quizzes and tests.
4. As one or more quizzes will be dropped from the final grade, there will be no make-up quizzes!
5. Scientific calculators with trigonometric capabilities are allowed in quizzes and tests. However, calculators must not have any pre-programmed physics information.
6. Grades are not given out in response to e-mail or telephone calls.

• **Important Dates:**

Classes begin: Jan 10, 2005      Withdrawl Deadline: March 4, 2005      Classes end: April 25, 2005  
Late Registration: Jan 10-14, 2005      Grade forgiveness deadline: Jan 14, 2005

• **Holidays:**

M. L. King, Jr. Day : Jan 17, 2005      Spring Break: March 14-18, 2005

Tentative Calendar

January 11, 13	Chapter 21,22	Electric Charge and electric field
January 18, 20	Chapter 22,23	Electric Fields, Gauss's Law
January 25, 27	Chapter 23, 24	Gauss's Law (contd.), electric potential
February 1, 3	Chapter 24,25	Electric Potential & Capacitance
February 8	Chapter 26	Current & Resistance
<b>February 10</b>	<b>Midterm-I</b>	<b>Chapters 21-26</b>
February 15, 17	Chapter 27	DC Circuits
February 22, 24	Chapter 28, 29	Magnetic Field & current
March 1, 3	Chapter 30	Inductor and inductance
March 8, 10	Chapter 31	EM Oscillation and Alternating currents
<b>March 22</b>	<b>Midterm-II</b>	<b>Chapters 27-31</b>
March 24, 29	Chapter 32	Gauss's Law for Magnetic Field
March 31, April 5	Chapter 33,34	Traveling EM wave, Optics
April 12, 14	Chapter 35,36	Optics
<b>April 19</b>	<b>Midterm-III</b>	<b>Chapters 32-36</b>
April 21	Exam Review	
<b>April 26</b>	<b>Final Exam</b>	
	<b>7:30-10:20, MAP 359</b>	