

## **PHY 2049 - Physics for Engineers and Scientists II**

Fall, 2008

Instructor: Dr. Jeffrey Bindell

Schedule: MWF 9:30-10:20 (Section 001) and 11:30-12:20 (Section 002)

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OFFICE HOURS: M,W,F -7:30-9:00A M,W,F 10:30-11:20 AM

Visitors Welcome!

*On most of these days I will be available after 12:30 if there is a need.*

### **Textbook:**

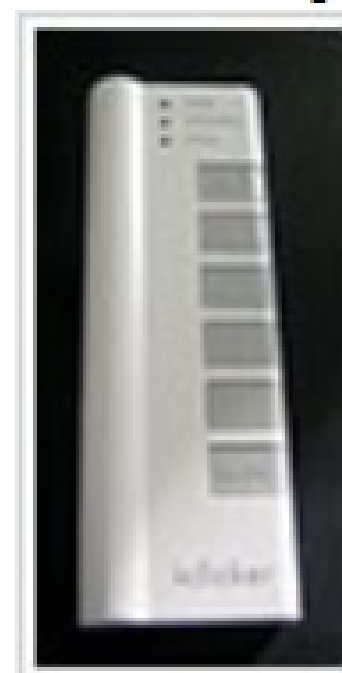
**Serway and Jewitt**

Physics for Engineers and Scientists, Volume 2, 7<sup>th</sup> Edition  
Thompson – Brooks/Cole

Also Required:

**WebAssign Login** (From Bookstore or on-line). It is easy to register for WebAssign on-line at [www.webassign.net](http://www.webassign.net). If you have used WebAssign before, your old password will still work. Your ID will be your PID number **without the leading zero**. If you are new to WebAssign, your initial password will be "ihatephysics".

**Clicker.** This class, along with most others, will use clicker technology so you will have to purchase "i-clicker" module clicker from the bookstore. If you are purchasing a new copy of the textbook you should find a WebAssign registration number as well as a \$10.00 discount on the i-clicker. If you used WebAssign last semester, your registration number may still be valid. Information about how to register your new i-clicker can be found at: <http://www.iclicker.com/dl/registrationoptions.pdf>. Be sure to register your clicker by the beginning of second class.



**Course Description:**

PHY 2049 is the second part of a sequence of introductory physics courses aimed at students who intend to major in engineering or scientific disciplines. It requires mastery of differential and integral calculus including such topics as line, surface and volume integration. Physics 2048 is a formal prerequisite for this course and an understanding of that material, especially an understanding of vectors, is necessary for successful completion of PHY 2049.

The material covered in this course is very interesting and its understanding allows the student to progress into all of the engineering and science programs at UCF. Without the background provided by PHY2049, students will find engineering, as well as physics and chemistry programs, difficult to understand. Consequently it is suggested that the student pay careful attention to this material because it has such a strong influence on future studies. (This has been a paid political announcement.)

### **Course Format:**

This section of this course have adopted a new method of presentation that differs significantly from the standard "lecture while you sleep" approach that has been in use for many years. Recent studies have shown that the key to learning any subject, especially physics, is a direct involvement in what is happening. This course takes note of this observation and utilizes class time in a slightly different way.

Another key to doing well in this course is to keep up with the material. Waiting as long as two weeks before "getting serious" is a great way to fail or get a low grade in this course. The new design of this course will make it difficult to avoid doing the work on time.

The key features of this approach are as follows:

- The class will utilize *real time* feedback via the utilization of "clickers". Questions will be posed to the class and the student can "click" in an answer. This will keep the student "tuned in" to what is going on in the classroom. It will also inform the instructor if a concept is understood or not. Physics demonstrations will also use this technology giving students the chance to "predict" what will happen and see if their understanding of the subject provides them with the appropriate predictive powers..
- There will usually be one WebAssignment per week. Completion of these assignments on time will be necessary to be able to properly participate in class activities. A limited number of extensions will be permitted. Each of these assignments will include approximately 8-10 problems. A "clicker reading quiz question" can be expected at the start of some classes.
- Class (clicker) participation will be a part of your grade (see below).
- Assigned reading materials will be due prior to the class session where it is to be used. Failure to do this reading will put the student at a disadvantage with respect to other students.

- Short quizzes will be given on an almost weekly basis, usually on Fridays. Clicker questions may be used on some of these quizzes. Quizzes and class participation will be weighted into your grade as stated below.
- Lecture material will be posted on the course web-page at [www.physics.ucf.edu/~bindell](http://www.physics.ucf.edu/~bindell). Some of my older lectures are also posted on this site so you can look at them as well. Some are the same and some are quite different.
- The best way to contact me is via the WebAssign e-mail functions or by the usual UCF email: ([bindell@physics.ucf.edu](mailto:bindell@physics.ucf.edu)). Communications regarding homework assignments are best handled within the WebAssign environment. I check **both** email and WebAssign communications at least once every day, including weekends.

**Material to be covered:**

This course will be covered over a 14 week period containing 40 teaching classes and 3 mid-semester examinations. It will generally cover the textbook at a rate of about one chapter per week. A selection of topics from later chapters will also be included. Because of the intensity of presentation, it is very important that the student remains current in the work; **“catch-up” is extremely difficult.**



**Grades:**