

PHY-2054C College Physics II (Studio)
Spring 2011 MWF (10:30 to AM-12:20 PM)
Section 0002

Dr. J. B. Bindell (jbindell@mail.ucf.edu) Office Hours: MWF 8:00 AM - 10:00 AM
Class Website: www.physics.ucf.edu/~bindell

CLASSROOM-I, Room 218

SYLLABUS

Welcome to the latest UCF offering of College Physics II offered in Studio Mode. Studio teaching is a method of teaching that is quite different from what you probably experienced in PHY2053 at UCF. The following photo is taken from the first delivery of this course in STUDIO mode during the Spring 2010 semester. It shows Dr. Bindell running a class that consists of a number of students sitting around a table, working in teams and talking incessantly. Actually, they are in the process of learning physics in a cooperative manner.



Traditional physics courses at UCF consist of a one hour lecture (3 times a week) and a three hour laboratory session. Students tend to “zone out” after about 10 minutes in a lecture and the laboratory is often out of sync with the lectures (often being ahead).

Studio physics tries to correct these problems. In the current version of this course, students will sit at “T” shaped tables, with each side of the T accommodating three students. Each group of three students will form a team, working together on every aspect of the course while occasionally working with the team that shares the other side of the “T” as well. Learning is via exploration and problem solving. Each group will also have a computer terminal that they can utilize. Personal laptops are permitted as long as they don’t get in anyone’s way and are used on task only. Each class session will consist of one or more of the following elements:

- Sets of relatively simple experiments that illustrate physical principles and lead to concept building.
- Problems to be solved in a group manner that build on these concepts. These problems may be similar to homework problems or more difficult. It has been shown that teams of students are actually capable of solving more difficult problems because of the combined intellect of the group members. (This is called “peer instruction”.) Students often learn more from their peers than they do from their instructors.
- Clicker Questions designed to probe your understanding of the material. Sometimes these will be group questions and sometimes individual questions. After answering these questions you will see how others in the class have answered. And the instructor gets instant feedback about whether the activity is getting across to the students.
- There will be no long lectures. Some topics require some “mini-lecturing” but this will be kept to a minimum. These will often be un-prepared, off the cuff presentations, as needed.
- Once a week there will be a 10-15 minute quiz on the material. These will usually be on Fridays and will always be announced in advance. There will also be 3 scheduled examinations.
- Although the concepts will be developed during class time, additional learning takes place through reading assignments in the textbook and by the assignment of homework problems on a roughly weekly basis. Homeworks will use the WebAssign system. Some quizzes may utilize WebAssign as well.
- Students will be encouraged to report their solutions to problems or their experimental conclusions to the rest of the class using the whiteboards on the walls. These exercises in technical public speaking will help you in your future careers but it really doesn’t matter if you “screw up”. What is important is that you do your best. Nobody will be forced to participate.
- Pre-class reading assignments in the textbook will be used as introductions to new topics.

THE CLASS WEBSITES

There are two places where students can find information that may appear after class is over. The first is the class website (www.physics.ucf.edu/~bindell) where schedules, class mini-lectures or other materials will appear. Up to date information can also be obtained on the *WebAssign* (below) site. It is worthwhile to check these between classes for any changes in class needs or requirements. Class messages may also be sent via the MyUCF website using your Knights.com address. Be sure that the address it is correct.

COURSE INFORMATION

DESCRIPTION

PHY2054 is a continuation of PHY2053 which is a course prerequisite. The class covers Electricity & Magnetism, and Optics. Emphasis is placed on understanding major principles, and mathematics is used to clarify concepts. Students should have a good working knowledge of algebra and trigonometry.

TEXTBOOK

College Physics (8th Edition) by Cutnell & Johnson, John Wiley & Sons, (2009) - (Vol. II). The bookstore may offer a “bundle” that includes WebAssign and possibly the i-clicker.

LAB MANUAL

The Lab Manual can be purchased at Grays College Bookstore: 4250 Alafaya Trail, Suite 240. Oviedo, FL, 32765. Tel: (407) 366-2241

Physics has a reputation of being a very difficult course. Its difficulty actually depends on how much effort is put into learning it. As we go through the textbook, you will find that each chapter usually depends on the previous chapters; the course is cumulative. If you keep up to date, *starting immediately*, you will find that the material is much easier than if you wait a few weeks before getting down to business. It is very difficult to learn this material in “catch-up mode”.

CLICKERS

This class, along with most others, will use clicker technology, so you will have to purchase an “i-clicker” module from the bookstore or from a student who is finished using it. 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 as soon as possible. The registration number for your i-clicker will be found on the back. If you can't read the clicker number on the back of the device you will need to speak to your instructor who can determine what it is. This number tends to rub-off so put a piece of transparent tape across it to maintain its value. It is probably best not purchase an i-clicker if you can't read the registration number on the back of the device.



WebAssign

WebAssign is the on-line homework system that we will use in this class. Aside from its obvious function, it has a communication system that allows you to communicate with your instructors as well as a sort-of-blog where you can communicate with the other members of the class to ask questions, get hints or, (not recommended,) solutions about homework assignments. You can