Physics 121, Fall 2006

Sections 01**
Prof. Douglas Roberts

Title: Physics 121: Fundamentals of Physics I

This is the first semester of a two term sequence on introductory classical physics. It satisfies the physics requirement of most medical and dental schools.

Prerequisites:

A good understanding of algebra and trig (at the level of MATH 115).

Instructor:

PROF	OFFICE	PHONE	EMAIL	OFFICE HOURS
Douglas Roberts	4308	x56067	roberts@umd.edu	Course Center, TBD By appointment

Required Texts and Materials

- Serway & Faughn, *College Physics*, (7th edition), Brooks/Cole Publishers
  - Most of the homework will be from problems found in the book and will be done via WebAssign (more on that later).
- Laboratory and Tutorial Manual
  - "PHYSICS 121, Tutorials and Laboratories, Fall 2006 Edition"
- WebAssign access code
- Remote Answering Device ("Clicker")
  - We will be using "clickers" during lecture (it looks like a TV remote)
  - You will not be graded based on correctness of answers given with the clicker, but you will receive class participation points
  - If you attend class but forget your clicker you will *not* get your participation points
  - You must register you clicker for use in the class.
  - More information on clickers can be found at http://clickers.umd.edu

Web Site

Most of the class information is on the web site:
http://www.physics.umd.edu/courses/Phys121/Roberts/F06/

Most of the homework will be done using WebAssign:
http://www.webassign.net/

I suggest you bookmark these sites and check them regularly. There will be announcements and forums on the sites.

Introduction

The approach taken in this course may be a little different from any previous science courses you may have taken. We will focus on learning to think rationally and coherently about the physical world, as opposed to simply memorizing a bunch of facts and equations. Instead of just paying attention to results we are going to be looking at how you get results, how to evaluate results, and how to relate what we are learning to your intuitions. We are going to learn how to "think science" rather than just collect someone else's results.

Class Participation

You are expected to attend all classes – lectures, discussions and labs. Each will involve your participation, including the lecture. Some of these activities will result in participation points, a significant contribution to your overall grade.

Lectures

Lectures will contain material that is not covered in the book. This may include:

- Demonstrations
- Class discussions
- Supplementary material

Anything covered in lecture is fair game for exams. If you have to miss a lecture you are responsible for finding out what was done.

I will post PowerPoint slides for lectures the evening before the next day's class. You may wish to print them out and use them for taking notes, but they will only be an outline of what will be covered and are therefore not a substitute for attending lecture.

You will contribute to lecture! We will be using "clickers" throughout the semester. They will be used to "poll the audience" and stimulate discussion on questions asked during lecture. Although I expect you to give thoughtful responses to the questions, you will not be graded on the correctness of you answers. You will, however, receive points toward your class participation grade by using the clickers. If you attend class but forget you clicker you will not get those participation points. Also, you will have to register you clicker.

Homework

Homework is a very important ingredient for success in this class! A major part of what I expect you to learn will come as a result of doing homework. In order to get good at thinking about physics and solving problems, you need to practice thinking about physics and solving problems. It's not enough to just listen to me talk about it.

Some of the homework will be problems taken from the end of each chapter of the text. These will be done using WebAssign (more details on WebAssign to follow). There will also be problems assigned that will require you to turn in paper copies in class.

Homework will be assigned on Friday. The WebAssign-based part of the homework assignments will be due by midnight on the Sunday 9 days after the homework is assigned. Any part of the homework that must be turned in on paper will be due at the beginning of class Friday (1 week after the homework is assigned). Since solutions to homework problems will be made available shortly after the due date, there will be no credit for late homework.

I encourage you to work together on homework. You can learn a lot from each other, and sometimes discussing problems with others helps to make things clear to you. You are expected to understand how to solve each problem on your own, however.

WebAssign

The part of the homework that involves problems from the end of each chapter will be done using WebAssign:

http://www.webassign.net/

You will need to purchase an access code. This can be done on the web at the WebAssign site using a credit card, or you may have purchased a text book with a WebAssign access code bundled with it. You will be able to use WebAssign without an access code for the first two weeks of the course, but after that a code will be required.

To log in to WebAssign, you will need:

- Username
- Institution
- Password

You have each been pre-assigned a WebAssign username and a password for this course. The username will be your University Directory ID. The usernames are case insensitive. Your initial password is your UID number (9-digit University ID, but not your Social Security number). The Institution is "umd".

Tutorials

Discussion sessions are run as group tutorials. These are group activities with worksheets in the lab manual. The tutorials have two goals:

- To help you develop you conceptual understanding of the basic ideas underlying the physics
- To help you learn to think about how you know what you know

If you need help with homework problems, go to the Course Center, Room 0208. You can work with other students, check other texts for ideas, or ask the Course Center monitor some questions. Don't expect the monitors to just show you how to do the problems. You will learn the most if you are the one doing the thinking. The monitors are there to guide your thinking.

Labs

You have to do the labs! There will be 10 labs during the semester. You must complete them all in order to pass this course. This is a requirement in order to meet professional school criteria.

There are no make-up lab weeks. If you miss a lab, you will need to make it up in one of the other lab sessions during that week. Since group activities play an essential part in these labs, it is impossible to "make them up" individually.

More details on lab procedure can be found on the class web site.

Exams

There will be two midterm exams and a final. All exams will be counted. Each midterm exam will be given on a Friday and returned the following Wednesday.
Tentative dates for midterm exams:

- Oct. 6
- Nov. 10

The final exam will be cumulative, but about half of the exam will focus on the material done after the second midterm. The final will be Wednesday, December 20, 8am – 10am. In the past, I have been able to reserve the room for the final from 8am—noon. The exam will be written as a two-hour exam, but if it is possible again this semester I would like to give everyone 4 hours. I don't want time to be an issue with your performance. If you have a conflicting final, let me know as soon as possible so other arrangements can be made.

Make-Up Exams

Each midterm exam will be followed by a make-up exam on the Tuesday of the week after the exams are returned. If you miss a mid-term due to a valid excuse, you must take the make-up. If you are unhappy with your grade on the original midterm, you may take the make-up. If you take both the original and the make-up exams, your grade will be the average of the two grades (even if your score on the make-up is worse than your score on the original exam). If you really put effort into understanding your mistakes on the original exam, there is a good chance that you will improve on the make-up. If you just want to take another shot at the exam, your score is just as likely to go down as to go up.

Grading

Your grade will be based on the following components:

Midterm Exams (100 pts each)	200
Final Exam	250
Homework (scaled to 250 pts)	250
Lab (scaled to 200 pts)	200
Participation (scaled to 100 pts)	100
Total	**1000**

Overall Grades

I expect that an "A" will require about 85% of the total points, a "B" will require about 75%, and a "C" will require about 65%. *These values are approximate* (note the repetitive use of the word "about"). Difficulty of exams and grading can vary. It is however more likely that I would lower these numbers than raise them (if the exams prove to be more difficult than expected, for example). If you all do well, I have no problem giving everyone an "A".

Since the lab grades will be determined by your TA and the TAs may grade a bit differently, the lab grades will be normalized across sections. So don't worry if your sections' lab grades are lower on average than the grades for students in another section. This will be adjusted at the end of the semester.

Valid Excuses

If you have a valid excuse for missing an exam or homework, see me to arrange what to do about it, beforehand if at all possible. After the fact excuses will require validation and may not be acceptable. You must speak to me. Your TAs do not have the authority to excuse you from any required class activity.

If you have any questions about policy or procedures, please feel free to ask.

-Doug