
Physics 126 Fall 2009:

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Lecturer

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Office Hours: Tu 3-4pm, Th 2-3pm in the Physics Help Room (1416 Randall Lab),
or by appointment

Discussion Instructors

TBA

Lecture Times

MW 2-3PM (sec. 1), 3-4PM (sec. 2)
170 Dennison

Text

[Physics](#) Cutnell and Johnson, Seventh Edition, 2007, Volume 2 (Chapters 17-32)
ISBN 0-471-66324-7 for Physics 126

Note: If you have taken Physics 125 and purchased the full text, Cutnell and Johnson, Seventh Edition, 2007 Volume 1 and 2 (Chapters 1-32) ISBN 0-471-66315-8, you do not need to purchase a new text.

There are supplements to this book available, such as a student study guide and

solutions manual. They may be useful to you but are not required for the course.

Other required material

We will use the [Wiley Plus](#) online homework system. This is packaged at no additional charge with a new textbook. If you purchased a used textbook, you must purchase Wiley Plus separately. See the CTools site for this course for step-by-step instructions on getting started with WileyPlus. Note that WileyPlus includes access to an online version of the text.

Course Web Page, E-mail

We'll use CTools for distribution of class news and materials, including exam solutions and announcements. If you have a conceptual question or need to set up an appointment to see one of your instructors, we can be reached most rapidly by email. If you send us mail, try to include "p126" in the subject line.

I will occasionally send e-mail to the entire class with announcements, clarifications of homework problems, etc. You can view the archive of all such e-mails by reviewing the e-mail archive in CTools.

Grading

Your course grade is determined as follows. Read on for details of each component.

Lecture Participation	5%
Wiley Plus Homework	20%
Discussion grade	10%
First three exams	15% each
Final exam	20%

Grading for this class is on an *absolute* scale with 85-100 corresponding to an A, 75-85 to a B, 60-75 to a C, and 40-60 to a D. (Sub-ranges for + and - will be determined later.) If fewer than half of you manage an average above 75, the grade range will be adjusted downward so that 50% of the students will receive a B or higher. It is very important for you to realize that because the scale is absolute, you have everything to gain and nothing to lose by working together. It is possible for everyone in this class to get an A.

Academic Honesty

It is important that this course be fair to everyone, with your grade determined solely by your own ability and effort. For this reason, academic dishonesty will not be tolerated. Some specific forms that academic dishonesty can take in a course like this include:

- Giving or receiving assistance during exams, or using unauthorized reference materials.
- Using a lecture reply unit that is not your own, or asking another student to do so.
- Giving or accepting answers to the lecture questions from someone in another lecture section.
- Submitting online homework that is not your own, or allowing another student to access your account. (You are encouraged to work together and get help in the Help Room, but the final work must be your own.)

It is demeaning to everyone impose draconian security procedures. We will not do this unless it proves to be necessary. Instead, we will operate under the honor system. If your own sense of personal integrity is not enough of a guide to what constitutes academic dishonesty, please see the [LS&A Code of Academic Conduct](#). This document also spells out the penalties, which range up to expulsion from the University, in considerable detail.

Lecture Participation

Lectures are intended to ensure that you gain a proper understanding of the most difficult material we cover, and to illustrate many of the concepts using demonstrations. (The demonstrations are frequently cited by students as their favorite part of the course.) Lectures are not intended to introduce you to the material for the first time (you should be doing the reading in advance), nor are they intended to be completely comprehensive. There will be material covered on exams and homework which is not covered in lecture.

So how can you "participate" in a large lecture class?

During the course of each lecture, we will pose about 3 short, mostly conceptual questions ("ConcepTests") that relate to the material under discussion. After reflecting on the question for a short while by yourself, you will key in a response using a handheld electronic response unit called a Quizdom remote. Sometimes, you will then be asked to discuss the same question with your neighbors, and reply again. Nearly always these discussions result in a higher fraction of correct answers. So you will be learning from your peers as well as from the professor--in

fact, you may find that a neighbor who has just "gotten it" can express the key ideas to you in a better way than the "expert" professor!

Details:

- The Quizdom units may be purchased at the UM Computer Showcase. You can sell them back at the end of the semester, unfortunately for somewhat less than you paid for them.
- Your responses to the ConcepTests are recorded as part of your grade. Points are assigned as follows:
 - A correct response is worth 4 points.
 - An incorrect response is worth 3 points.
 - A non-response is worth 0 points.
 - If the same question is asked twice (before and after discussion with your peers, for example), only the second response will count. These are much more likely to be correct. (If you changed from a correct to an incorrect response after discussion, too bad--you should have had the courage of your convictions!)
- Your two lowest lecture participation scores will be dropped.

Discussion

In the discussion portion of this class you will be divided into groups and given several practice problems to work on as a team. These problems will help reinforce both your conceptual and quantitative understanding of the material. Your discussion grade is worth 10% of the total. Again, your two lowest discussion scores will be dropped.

WileyPlus Homework

Solving problems is not only the best way to learn physics, it is the only way. We will do our best to teach you this material, but only *you* can learn it. You can best do this by engaging the material head on in the homework assignments--which of course is the same thing you will be asked to do on the exams.

Homework problems are done using the WileyPlus online homework system. There is usually one such assignment due most weeks on Wednesday or Sunday at 11PM. An assignment will generally become available for you to work on one week before the due date.

With the purchase of your textbook, you will receive a free registration key to access the Wiley Plus homework service. For instructions on getting started with Wiley Plus, see the [instructions](#) posted on CTools.

- You can come back and work on an assignment as often as you want before it's due.
- For most problems, you will get unlimited tries to get the right answer (usually with different numerical values).
- Your lowest Wiley Plus score will be dropped.
- Homework scores will be kept in the gradebook on the WileyPlus site, and imported to SAMS at the end of the term. It is *your responsibility* to check that your assignments have been recorded correctly. Score correction requests must be submitted to phys126lecture@umich.edu within one week of the assignment due date. No score correction requests will be accepted after the final exam.

A word of advice: research studies have shown that **copying online homework is the single strongest predictor of poor course performance**. Not surprisingly, homework copying tends to be brought on by time pressure. I recommend beginning each homework assignment as soon as you have covered the appropriate material in lecture, rather than a few hours before the due date. The homework assignments can take a considerable amount of time, so it's wise to plan ahead, get an early start, and if you need help--ask!

Exams

There will be three 120 minute exams during the semester, plus a comprehensive 120 minute final exam.

Midterm Exam #1	Thursday Oct. 8, 8:00-10:00 PM
Midterm Exam #2	Thursday Nov. 5, 8:00-10:00 PM
Midterm Exam #3	Thursday Dec. 3, 8:00-10:00 PM
Final Exam	Friday Dec. 18, 8:00-10:00 PM

There will be no makeup sessions for these exams, so it is essential that you examine these dates now. **If you are unable to attend one of the exams, you cannot take Physics 126 this semester.** All exams are closed book; however for the midterms you may bring a 3x5-inch "cheat sheet", and for the final exam you may bring an 8.5x11-inch "cheat sheet." For midterms 2 and 3 you may bring your notecards from the previous midterms as well. In addition, you should bring a standard graphing calculator to each exam. Palmtops, cell phones, PDA's, and calculators with extensive text displays are not permitted. The exams will test your ability to apply the major concepts from the course to new situations; consequently it is generally not productive to fill your cheat sheet with dozens of obscure

equations from the text or to memorize rote problem solutions without an understanding of the underlying physical principles. Exams will be multiple choice and will include a roughly equal mixture of quantitative and conceptual problems.

Labs

It is highly recommended that you register for a Physics 128 lab concurrent with this class. This lab is a required class for most of you, and taking it at the same time as the lecture class will maximize what you learn.

Study Groups

We strongly encourage you to work together in study groups. The Science Learning Center in the Chemistry building has a very nice service to help you find a study group which meets on your schedule and in a location convenient to you. These groups generally meet 2 hours per week (more in the spring) and are led by a trained peer leader. You can [sign up for a study group on the web](#) at the beginning of the term.

While you are encouraged to discuss homework problems and work on them together, you remain responsible for submitting in your own version of the solutions in the end. It is often true that students learn more effectively from one another than they do from their professors, and if you don't take advantage of this you're making your life more difficult than it needs to be. Contrary to popular belief, helping someone else will not hurt your grade. Grading for this class is on an absolute scale, so you are not in competition with your classmates. It is possible for everyone in the class to do well.

Help!

Don't panic! You are not in this alone. The most important way to get individual help in the class is to take advantage of our office hours. There are also a number of other resources available. The most important of these is the free [Physics Help Room](#) in 1416 Randall. It is open 10AM-3PM Monday-Thursday and is staffed with GSI's and faculty who teach the introductory courses. They are available to help you work through homework, prepare for exams, or ponder questions which confuse you. A good idea is to work on your homework (perhaps in a study group) right in the Physics Help Room. Then if you have problems there is help

immediately available.