

Syllabus for PHYS 260

Section 309 (Thursday from 11:30 am - 12:20 pm)

Section 310 (Thursday from 12:30 pm - 1:20 pm)

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Format

This is a recitation section for PHYS 260. The general format will be

1. (Possibly) A very brief quiz. The minimum score will be 8/10. To prepare, read the lecture notes. The quiz will be simple and is intended to ensure that you paid attention to the lecture.
2. A brief review of the topic that will be covered on that day.
3. Students work in groups of 2-3 on in-class problems given on a handout.
4. At the end of class, you will turn in your work. Your work will be graded; if there is evidence that you tried most of the problems, the minimum score will be 8/10.

Grade

Your recitation grade will be determined by your average score on quizzes and in-class problems. I will drop the lowest two scores. Your recitation grade is 10% of your class grade. Grades will be posted or communicated mid-semester and also at the end of the semester. I'll let you know then where they will be posted.

Advice

Use [Feynman's Never Forget an Idea Again](#) method.

How to read:

1. Read the explanation of a topic and fill in missing steps.
2. Close the book and attempt to repeat the explanation and diagrams. Check your answer. If you got it wrong, repeat 24 hours later.

To succeed in college-level physics courses, you may need to change the way you study.

Success in this course depends on, in order of importance,

1. 80-90%: How many problems you solved “the right way” (see below)
2. 10-20%: Your prior preparation, your raw intelligence, your instructor

Solving problems “the right way” is critical. It is not:

1. Reading and understanding the steps of the solution. Often we think that we understand a problem when we understand all of the steps in a solution that is given to us. To convince yourself that this is not the case, read a problem statement and then its solution and then attempt to solve the problem without referencing the solution 24 hours later. For non-trivial problems, your success rate will be very low.
2. Reading a problem statement, looking at a formula sheet and identifying equations that seem like they would apply, manipulating the equations until you get an answer, checking the solution, and then reading the solution and saying “that makes sense”.

When you do this, it feels like you are doing work and making an effort, but it is essentially a waste of time. It is about as useful as attempting to be a good basketball free-throw shooter by watching videos of good players. You can watch 100 hours of videos and not improve much.

The “right way is”

1. Reading the problem statement.
2. Identifying what concepts apply.
3. Attempting to recall or derive the equations that apply to the concept before looking them up.
4. Solving the problem.
5. Asking if the solution makes sense. (I’ll discuss many techniques for this.)
6. Explaining your solution to another student. If you are not confident in part of your explanation, re-read the relevant section of the book.
7. Checking the answer (not the full solution). If you got it wrong, try to modify your solution.
8. After you have tried many times to get the correct answer, read the solution. Then attempt the problem again in 24 hours without looking at the solution.
9. Finding a similar problem and attempting to solve it. Repeat until you (a) are able to successfully solve 2-3 problems in a row and (b) can read a problem statement and immediately state what steps are needed.