

Some comments for those who are concerned after the first midterms in Phys 1120

Some people got a score on the first midterm below what they had hoped or planned for. If this is you - please don't panic, but consider this as an indication that you may be headed for difficulties in the class. Any given exam is just a relatively small fraction of your grade, and can therefore be "overcome"! But, if you do similarly on future exams, it obviously becomes a problem. The *worst* approach is to ignore what happened, merely hoping for the best. That's not a strategy for success. Something has to change, your grade on future exams probably won't go up just because you realize, after the fact, what you got wrong on the first midterm. Use this as an opportunity to change what you're doing, and to rethink your own ideas about what effective studying means in this course.

Look back over the exams carefully, on your own at first - ask yourself *why* you missed the questions you did. What do you need to do to more effectively prepare for the next midterm? Don't just hope it might work out o.k. - take charge of your own learning, think about the course goals, and the kinds of assignments we have, and try to figure out how to best study. **There is no universal answer** . For some students, more careful reading of lecture notes or textbook(s) may be key. Reading a physics textbook is not like reading literature. You can't skim, and reading with a marker pen, underlining keywords, is probably not very effective either. Have some blank paper, work things out as you read. You need to engage with the text. Argue with yourself, keep closing the book and try to reproduce the argument, make sense of the definition, solve or extend the example.

Mastering physics is not about memorizing answers, or even memorizing procedures. It's about making *sense* of the material. How do you know if it makes sense? Getting a question right is not enough - can you generalize, think about other cases? Can you explain your answer, in words? Can you make up new problems, and solve them? Can you summarize how the various ideas we're studying fit together, can you build a "concept-map" that is more than just a disconnected list of topics or (worse yet) equations?

When in doubt, ask yourself "how would I explain this to someone who doesn't get it" or perhaps better yet, who doesn't even know much physics? It's an incredibly helpful way to go about making sense of something. *If you can't explain it, clearly, so that someone else gets it, then you probably don't have a solid understanding yourself yet* . (This is one of the *reasons* that Tutorials and ConceptTests in class have such a demonstrably strong positive impact on learning in this course!)

More likely, you may need to devote more time and attention to the tutorials, and tutorial homework. These are hard, but they are definitely within your reach. Maybe you should spend a little time before the tutorial, looking over it to try to get a sense of what it's about. You might re-read the appropriate section of the textbook(s) or lecture notes, to try to see how the tutorial connects with the "formulas". Don't forget that tutorial homework counts as much as a midterm! It's worth putting some energy into that! Feel free to get help in office hours (see the schedule to make sure there's an 1120 TA in the help room when you go) Study groups, if used effectively, can be great for this kind of work. During tutorial

itself, keep asking yourself "am I just going through the motions, or am I trying to think about the big picture, and really *make sense* of this material?"

Some of you may need to focus on the concept tests. But remember - **it's not about "learning the answers" , it's about making sense of them so that you can do new and *different* ones on your own .** Don't rush to "check yourself with the answer". Take your time, think of the arguments. Ask yourself what *my* arguments are likely to be. How does this concept relate to the section we're covering in the text? Why did I choose to ask it? How might I change it just a little, keeping the CONCEPT the same, but changing the example or style or precise question. Again, discussing with study partner(s) can be invaluable - not just to hear other ways of thinking, but to help *you* learn how to explain yourself out loud. **There is no better way to learn than to try to teach!!**

If the problems you missed on the midterm involved algebra or math or "problem-solving" skills, perhaps you need to try *more* than just the CAPA problems. E.g, you might start working problems from the book, there are many solved examples. This is not the solution to everyone's test taking problems - but it can help if your algebra or "problem manipulation" skills are what are hurting you. (This was probably not much of an issue on the first midterm, but there may be a few more math intensive questions on future exams)

For a few people, the problem is not so much physics as it is simply test-taking. If you feel you get so nervous or distracted taking exams that your performance is not reflecting what you know, consider talking to [Student Academic Services](#) to get evaluated for test anxiety. There are some basic tricks and tips that can help anyone relax, and perform as best they can. Remember that any SINGLE exam will not determine your grade. If you find that time is an *issue* on exams, you may need to actively practice budgeting your time and working efficiently. Talk to us, or your TA - we're happy to try to help, it's what we're here for.

As you can see from the distribution, most of the class is doing very well, but there is a small tail of people who, perhaps, haven't yet figured out the best way to learn this material. You can't memorize your way through Physics 1120, and it's not about punching numbers into formulas. We're here to help, but nobody can "teach you" this stuff except *you* ! Take advantage of the help room, and office hours. Perhaps you should find/make a study group? Don't put it off! You can't "cram" effectively for a course like this, *now* is the time to take action, change your study habits, and decide what kind of effort you need to put in to do as well as you want to in this course.

Spending more time in NOT always what's needed, you may just need to change the *way* you spend your time. (For sure, try to do the assigned readings in advance of lecture, and attend lecture and tutorial!) Did you ever look at our recipe for success in the online syllabus?

Suggested Material to review while studying:

- You can review the online Pre-lectures at any time.
- Look over all of the CAPA assignments. In general it is a good idea to keep a good written record of your solution to each CAPA problem. If you are confused about how to solve a particular problem, CAPA solutions are available on CULearn.
- The clicker questions and answers are available on the course website in the "Weekly Calendar" section.

- The clicker questions without answers are available on CULearn.
- A sample exam and solution will be made available for each exam on CULearn. Once you have finished reviewing all of the other material, it is a good idea to try to take the sample exam.

Good luck, and let Prof. Lewandowski or Prof. Marino know what more I/we can do to help you learn this material. Like I said, that's what we're here for!
