

PHYS161-0101,0103,0104: General Physics: Mechanics and Particle Dynamics-Fall 2017 drew

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Course Syllabus

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		Office hours:	M 10:30-12:00 and by appointment
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		Office hours:	TBD, and by appointment
Lecture:	MWF 3:00-3:50 pm		
Lecture Room:	PHY 1410		
Discussion Sections:	0101	Tues 3-3:50pm	PHY 0405
	0103	Fri 10-10:50pm	Chem 0128
	0104	Fri 11-11:50pm	PHY 0405
Pre-requisite:	Math 140		
Co-requisite:	Math 141		

Course Description:

This is the 1st semester of a 3-semester sequence of calculus-based general physics for engineering students. We will study laws of motion, force, energy, principles of mechanics, collisions, linear momentum, rotation, gravitation, fluid mechanics.

Textbook:

University Physics with Modern Physics, 14th Edition, by Young and Freedman

Note that you can get the hard with the entire text, or a soft copy that divides the text into several sets of chapters. For this course, the 1st set for the soft copy is apparently sufficient.

eHomework:

All homework will be via the Mastering Physics web site:

<http://www.masteringphysics.com> (<http://www.masteringphysics.com>)

You will need to use the following ID to access this class:

MPBADEN89289

The following pdf file comes from the company (Pearson) and is a decent 1 page instruction on how to use Mastering Physics:

[MasteringPhysics.pdf](#)  

Course Schedule:

Below is a preliminary schedule for what I will try to cover. I made a good faith effort to fill it in at the beginning of the semester, however given that life is full of fluctuations, I may make adjustments along the way as to what subjects will be covered when. The midterm exams, however, are probably not going to change, and the final is for sure going to be on Dec 14 as noted below.

	Mon	Chapter	Wed	Chapter	Fri	Chapter
Aug	28	1	30	1		
Sept					1	1,2
	4	<i>Labor Day</i>	6	2	8	2
	11	3	13	3	15	3
	18	4	20	4	22	4
	25	5	27	5	29	5
Oct	2	Exam 1 Ch 1-5	4	6	6	6
	9	6	11	6,7	13	7
	16	7	18	7	20	8
	23	8	25	9	27	9
	30	9,10		10		10
Nov			1		3	
	6	Exam 2 Ch 6-10	8	11	10	11
	13	11,12	15	12	17	12
	20	13	22	<i>Thanksgiving</i>	24	<i>Thanksgiving</i>
	27	13	29	13		
Dec					1	14
	4	14	6	14	8	Exam 3 Ch 11-14

Class Holidays:

There will be no class on Labor Day (Monday, Sept 4), and the Wed and Fri of Thanksgiving week (Wed Nov 22, and Fri Nov 24).

Exam Schedule:

The following schedule is tentative for the midterms, and the chapters to be covered are my best guess at the time this syllabus was created (it will be updated along the way). The final exam date is set by campus and will definitely be held at that time and date:

Midterm 1: Monday, Oct 2, chapters 1-5

Midterm 2:	Monday, Nov 6, chapters 6-10
Midterm 3:	Friday, Dec 8, chapters 11-14
Final:	Thursday, Dec 14, cumulative 1-14

ELMS

I will be making use of ELMS for at least the following:

- Syllabus The schedule will invariable change along the way, but I will use ELMS to keep the official schedule
- Grades ELMS has a way of keeping track of all students and their scores. I will use this as much as possible so that you can keep abreast of how you are doing.
- Exam distributions Since grades will be curved, I will post the exam distributions so that you can see how well you did relative to the class as a whole.
- Additional material There's a lot of stuff "out there" that might be useful. I will find a place and post it and let you know where you can find it on ELMS, possibly linked from this Syllabus. Stay tuned...

ELMS is a nice tool that tries to make communications easy. So I will be making announcements in ELMS, which should get to you via whatever email you registered there. Please be sure to make sure that it's the right email address.

ELMS also has a "chat" feature. You should feel free to try to use it. If you catch me online then I am fair game to ask questions to!

Overview

The importance of good engineering in modern life cannot be overstated, and good engineering vs bad engineering (bad means mistakes!) can make a huge difference in all of our lives. Mistakes will happen, but it will be your job to guard against it. For instance, mistakes like these:



can cost lives and waste huge amounts of money. Mistakes like these:





can not only cost you your job, but also your self respect!

The purpose of this class is to give you an introduction into the fundamental principles of mechanics, and how to think like a scientist/engineer. The latter is probably the most important thing you will get out of this course, in that it will help you in your engineering career to be successful, and hopefully, to not make the above kind of mistakes!

This class consists of Lectures, Discussion Sections, Homework, and Exams, discussed next. There are no quizzes. I find them to be of limited value and mostly a nuisance to the students. Also, there will be no attendance taken at the lectures or discussion sections, as you are all adults (you are old enough to drink, marry, have babies, drive cars, get tattoos, go to jail, join the army, etc.) so I will rely on you as young adults to do the right thing for yourself and your future as engineers. My advice is that since you are paying for this education (or someone close to you is paying), then you should do what you can to get the most out of it. It is my job to make the lectures and discussion sections valuable, so if you find that these are not so useful, please find a way to let me know. I appreciate any and all feedback.

Lectures

These are intended to help you with acquiring a basic understanding of the material. I will go over the relevant chapters, with an emphasis on demonstrations and problem solving, and how things work. Note that I may use the lectures to make announcements, and if I do I will try to also send around an email.

Discussion sections

You will also have a discussion session each week, except at the beginning of the semester. The discussion session is designed to help you with your understanding of the material. My advice is to prepare in advance at least one question from the homework or the book that you are not sure about, and ask your TA to go over it. One piece of advice: don't go to the discussion and ask the TA to solve the problem, instead go and ask the TA to teach YOU how to solve the problem. There's a difference (you don't learn to shoot jump shots in basketball by watching your TA do it!).

Homework

Homework is how you train your mind. Problems from the textbook will be assigned throughout the term. The assignments will be in electronic format and will be carried out using the MasteringPhysics software (see above). You should do the homework before the due date, because after that the web site will close the assignment and you will not be able to turn it in even if it's late. You are encouraged to work in any size group you feel comfortable with.

Exams

You will be given 3 midterm exams (see schedule above) in class, plus a final exam at the end of the semester (12/14, see above). The dates for the midterms are subject to change based on how well we are doing getting through the material, the weather, bomb threats, fire, etc. But for the most part you can pretty much count on those dates.

On exam day, bring a pocket calculator and writing tools (pens or pencils). You are not allowed to use your mobile device during the exam (we have to make a level playing field, which means no one can have the advantage of using google!), so be sure to bring a separate calculator (**not** the one on your smart phone!).

All exams are closed-book and closed-notes. However, you should prepare and bring a formula sheet (both sides are ok for formula) containing equations and values of fundamental constants, but **EMPHATICALLY NO PROBLEM SOLUTIONS**. The exam proctors may ask to take a look at your formula sheet, and if there are any problem solutions there, they may make you take the exam without it!

When the exams are handed back, I will post a distribution on this web site so that you can get an idea of how well you did relative to the class as a whole.

In the complicated modern life, sometimes you will have to miss exams for all sorts of reasons (illness, family, legal, etc). I have found that make-up exams are not only difficult to make fair, they are inherently unfair to the person who takes them (they are usually harder than the scheduled exam). So, to make things simpler, I will drop the lowest of the 3 midterm grades when making up your final grade. (FYI, to do this, at the end of the semester I will normalize all 3 exams to have the same mean and standard deviation, and will use the two exams that have the best score relative to the mean and standard deviation for your grade, dropping the exam with the lowest score.) This means that if you have to miss an exam, then I will drop that exam from your grade.

Note that if you miss the final, however, you will receive an incomplete (I) for the course provided that you have a passing grade up to that point.

Grades

Grades will be based on the following 3 sets of work you produce, with the corresponding weights:

Homework	20%
Midterm exams (25% each of two)	50%
Final exam	30%

Note:

- The midterms will all first be "normalized" (adjusted) so that they have the same average and standard deviation (SD). In my experience, the normalizations are usually close to the exam scores. I will then drop the exam that has the lowest normalized score relative to the average and SD, to take into account variations in the exam difficulties (that I will try to avoid).
- If you miss the final, you will receive an incomplete (I) for the course provided that you have a passing grade up to that point. If you don't have a passing grade up to that point, and you miss the final, then you will not pass the course, unfortunately.

Honor Code

It goes without saying that you are on your honor to play fair and not cheat. And as future engineers, you will find that cheating never works, and people who cheat end up falling behind one way or another eventually. Especially in engineering! Anyway I don't expect any of you will be dishonest, but I have to pass along the following:

The University of Maryland has a nationally recognized Code of Academic Integrity, administered by the Student Honor Council. This Code sets standards for academic integrity at Maryland for all undergraduate and graduate students. As a student, you are responsible for upholding these standards for this course. I will ask you to sign the Honor Pledge on exams; I will not ask you to sign it on each homework assignment, but it should be understood that the Honor Code still applies. It is very important for you to be aware of the consequences of cheating, fabrication, facilitation, and plagiarism. Violations will be taken very seriously and may result in an XF grade for the course and possible suspension. For more information on the Code of Academic Integrity or the Student Honor Council, please visit the following website

[Student Honor Council \(http://www.studenthonorcouncil.umd.edu/SHC/Default.aspx\)](http://www.studenthonorcouncil.umd.edu/SHC/Default.aspx)

(www.studenthonorcouncil.umd.edu/SHC/Default.aspx)

Collaboration

Working together with other students is part of the course; in fact, the tutorials and labs are specifically designed around teamwork. Working together to figure out the homework is also encouraged, but you must turn in your own work. Talking about how to work the problem is fine if it helps you to understand it better, but **COPYING A SOLUTION IS STRICTLY FORBIDDEN. IF CAUGHT ENGAGING IN SUCH ACTIVITIES, YOU MAY BE REFERRED TO THE STUDENT HONOR COUNCIL.**

Religious observances

If you need to miss class, a deadline, or an exam due to a religious observance, please notify me in advance, preferably at the beginning of the semester.

Students with disabilities and/or special needs

Accommodations will be provided to enable students with documented disabilities to participate fully in the course. Please discuss any needs with me at the beginning of the semester so that appropriate arrangements can be made. Students who are registered with DSS, and who are planning to take examinations at DSS facilities, are required to let me have the pertinent authorization forms in editable electronic format at least one week prior to each exam date.

Students with disabilities and/or special needs

Weather and emergency closures: If the University is closed due to inclement weather or some emergency situation on the scheduled date of an exam, then the exam will be given during the next class period when the University is open. If the University is closed on any non-exam day, including just before an exam, then the exam will still be given according to the original schedule. In these or other exceptional circumstances, I will attempt to send out information by email.

Course announcements by email and email usage

As noted above, I will be sending important announcements to the class using ELMS. If you don't get into the habit of using ELMS, you may miss out. If you have a question, and you can't get to the TA or to my office hour, then you can send it to me via ELMS. You can also send me email to my address (top of this page). I will respond to all queries as soon as I can.

Copyright Protection of Course Materials

Unless indicated otherwise, any lecture handouts, exams, homework and exam solutions, and the lectures themselves (including audio and video recordings) are copyrighted by me and may not be distributed or reproduced for anything other than your personal use without my written permission.

Course Summary:

Date**Details**