

# PHYSICS 260 Course Syllabus Fall 2015

Instructor: Dr. Andrew W. Smith ([asmith44@umd.edu](mailto:asmith44@umd.edu))

Office: 2123 Phys. Sci Com.

Lecture: TuTh 3:30-4:45pm, Physics 1412

Office Hours: TuTh 5-6:30

Mastering Physics ID: MPSMITH57508

## Standard Course Description:

Second semester of a three-semester calculus-based general physics course. Vibrations, waves, fluids; heat, kinetic theory, and thermodynamics; electrostatics, and basic circuits. PHYS260 and PHYS261 must be taken in the same semester and the grade for the courses will be combined into a single grade for both. To pass, students must complete passing work in both PHYS260 and PHYS261.

Prerequisite: PHYS 161, MATH 141

Co-requisite: PHYS 261 (lab course), you must be enrolled in and pass the laboratory course if you want to pass this course.....

## IMPORTANT DATES:

Friday Sep 11: Last day to drop/withdraw w no record

Thursday Oct 8: First Midterm

Thurs Nov 5: Second Midterm

Friday Nov 6: Last day to drop w/no effect on GPA (W still recorded)

Tue December 8: Third Midterm

**FINAL EXAM:** Tue Dec 15, 6:30-8:30, Location TBD

## Discussion Sections

0501: Fri 9:00-9:50	Milos Nikolic	Room	PHYS 0405
0502: Fri 12:00-12:50	Milos Nikolic	Room	PHYS 0405
0503: Fri 10:00-10:50	Sumit Sinha	Room	SPH 1302
0504: Wed 10:00-10:50	Milos Nikolic	Room	SPH 1302

For more information on discussion sessions please consult TESTUDO.

### Textbook:

"Physics (with Modern Physics) for Scientists and Engineers, A Strategic Approach" by Randall. D. Knight, 3rd Edition. In addition to the textbook, you will need a copy of the "Physics 261 Laboratories" manual, which is a University of Maryland custom book published by Wiley. (used copies of the lab book are okay, but they must not have been written in)

### Your Grade:

25% Lab

25% Exam Scores (Best 2 out of 3 Exams)

15% Homework

10% Learning Catalytics (70% Correct/30% Participation)

25% Final Exam (cumulative)

### Homework:

Homework will be done through *Mastering Physics*. I will assign typically assign HW on Thurs night after lecture and it will typically due by 12:00am the following Thurs (i.e. late Wed Night)

You must submit your answers for the homework problems over the internet using the *Mastering Physics* web site (see below).

There are several advantages to electronic homework submission:

- (1) You will know right away if your answer is right or wrong
- (2) If you give a wrong answer, you can go back and try again to see if you can get the correct solution.
- (3) You are graded only on your final answers and get your score when you are done.
- (4) The site also has a tutorial capability that you may find helpful.

Note that the software may randomize the numbers each time you make a new attempt on a problem, so be careful and remember that other students working on exactly the same problems are likely to have different numbers.

**Why You Need to do the Homework:** The principal way that you can understand Physics is by learning how to solve problems. The homework can be expected to be challenging, it counts a great deal towards your final grade and it enables you to succeed on your exams.

**Getting started in electronic homework submission:** To turn in your homework, you need to go to: <http://www.masteringphysics.com/>

The site is best accessed with a current version of Windows Explorer or Firefox. If you run into problems, check the system requirements. In the past, there have been major issues working with *Mastering Physics* through Google Chrome, so please avoid using Google Chrome.

**Registering and Gaining Access to Mastering Physics:** In order to turn in your homework, you will need to register at the *Mastering Physics* website <http://www.masteringphysics.com/>. To register, you need two things - an access number and the class ID. When you buy (new or used copy of) your textbook you will need to purchase a *Mastering Physics* access key number. The easy way to do this is to simply buy it on line from the above MP website.

Your class ID is: MPSMITH57508

## Learning Catalytics:

Learning Catalytics (LC) is an in-lecture based student response system- I will be using this system to provide both feedback to how well you all are understanding the material as well as giving a version of in-class quizzes. Instead of using "clickers" you will interact with the LC through the use of any smart phone/tablet/laptop which has an internet connection. Please see me if you do not have one of these devices. You can purchase a LC membership for the semester for \$12 through: learningcatalytics.com

## Exams:

You will have 3 in-class exams, plus a cumulative final. I will take the best 2 out of 3 in-class exam scores. You will be allowed 1 8.5x11 sheet of notes with equations on it (2 for the final), but they must be hand written. You can bring a calculator also.

## Late Submissions and Make-ups

Turning in late homework is not allowed under any circumstances. Assignments will be given well in advance of the due date, so that it is in your interest not to wait until the last day to work on them, thereby avoiding that inescapable commitments or unforeseen emergencies could prevent you from submitting your work on time.

The lowest of three scores in the midterm exams will be dropped. No make-ups will be given under any circumstances. If you happen to miss one exam, due to illness or any other reason, that is the score that will be dropped. You must take the final exam in order to pass this course.

## Students with disabilities

Accommodations will be provided to enable students with documented disabilities to participate fully in the course. Please discuss any needs with the instructor 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.*

## University Closure

In the event of a University Closure the department will do its best to accommodate students by scheduling make-up sessions or revision of the lab schedule.

## Lecture Schedule

<b>Week of</b>		<b>Topic</b>	<b>Text Chapters</b>
09.01	Tue Thurs	<b>Class Intro, Temperature, Phase Changes Ideal Gases</b>	Ch 16.1-4 Ch 16.4-6
09.08	Tue Thurs	<b>Work and Energy in Ideal Gas Processes 1st Law of Thermodynamics, Calorimetry</b>	Ch 17.1-4 Ch 17.4-8
09.15	Tue Thurs	<b>Connection to Microphysics Entropy, 2nd Law of Thermodynamics</b>	Ch 18.1-4 Ch 18.4-6
09.22	Tue Thurs	<b>Heat Engines, Refrigerators Engines/Fridges Cont, Carnot Cycles</b>	Ch 19.1-4 Ch 19.4-6
09.29:	Tue	<b>Properties of Waves Standing Waves, Nodes</b>	Chs 20 + 21
10.06 Thurs	Tue Thurs	<b>Ch 16-21 Catch Up, Review for MT 1 Midterm 1</b>	
10.13	Tue Thurs	<b>Concept of Electric Charge, Coulombs Law Coulombs Law Cont, The Electric Field</b>	Ch 25 Ch 25
10.20	Tue Thurs	<b>Electric Field of Multiple Charges Charged particle motion in an Electric Field</b>	Ch 26.1-4 Ch 26.4-7
10.27	Tue Thurs	<b>Symmetry, Flux, Closed Surfaces Gauss's Law + Examples</b>	Ch 27.1-4 Ch 27.4-6
11.03	Tue Thurs	<b>Ch 20-21, 25-27 Catch up, Review for MT2 Midterm 2</b>	
11.10	Tue Thurs	<b>Potential and Potential Energy Potential/Field Connections</b>	Ch 28.1-5 Ch 29.1-4
11.17	Tue Thurs	<b>Capacitors Current/Conductivity/Resistance</b>	Ch 29.4-7 Ch 30.1-4
11.24	Tue Thurs	<b>Ohm's Law + Circuit basics Thanksgiving Break</b>	Ch 30.4-6, 31.1-2
12.01	Tue Thurs	<b>Basic Circuits continued, RC Circuits Catch up Chs 28-31, Review for MT3</b>	Ch 31 (all)
12.08	Tue Thurs	<b>Midterm 3 Class Review</b>	

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