Physics 260: General Physics II Spring 2012 Syllabus
Sections 0301, 0302, 0303

Course description

Physics 260 is the second of a three-semester calculus-based introductory, general physics sequence designed primarily for engineering students. The major topics included in the course are simple harmonic motion, waves, thermodynamics, electrostatics, and fundamentals of circuits.
The course consists of three parts—**Lecture**, **Discussion,** and **Lab (PHYS261)**. The prerequisites are MATH141 and PHYS161, while PHYS261 is a co-requisite that must be taken in the same semester. The grade for PHYS261 will be combined with your grade for PHYS260 and you will receive one grade. ***You must pass both PHYS260 and PHYS261 to receive a single passing grade!***
This course is designated a CORE Physical Science Lab (PL) Course when taken concurrently with PHYS261.

Staff

Instructor

Name	Email	Office hours	Location
Dr Daniel Hertz	dbhertz@umd.edu	Tu 1:30–3:00 pm Th 1:30–3:00 pm *(and by appointment)*	PHY 3102

Discussion TA

Name	Email	Office hours	Location
Matthew Kretschmer	mkretsch@umd.edu	M 1:00–3:00 pm	PHY 0104
Hwanmun Kim	hwanmun@umd.edu	Tu 2:00–3:00 pm F 2:00–3:00 pm	PHY 0104 PHY 0104

Course Website and Communication

Course documents, lecture slides, homework assignments and course communication will all be handled using ELMS Blackboard. Make sure you have access to the course site.
Changes of schedule and other important course information will be posted on the course website and in the event of urgent information will be emailed to students.

Times and Locations

Section	Type	Time	Location	Instructor
All	Lecture	MWF 3:00–3:50 pm	PHY 1412	Dr Hertz
0301	Discussion	M 12:00–12:50 pm	MTH 0302	Matthew Kretschmer
0302	Discussion	Th 11:00–11:50 am	PHY 1201	Matthew Kretschmer
0303	Discussion	F 1:00–1:50 pm	PHY 1219	Hwanmun Kim

Required Materials

- Physics for Scientists and Engineers: A Strategic Approach with Modern Physics 2nd Ed (volumes 2,3 and 4), by R. Knight
- MasteringPhysics subscription)
  This is needed in order to have access to the web-based homework assignment and collection system. You can obtain an access code by purchasing a new copy of the textbook with which a code is bundled. Alternately, if you buy a used copy of the textbook, you can purchase an access code for MasteringPhysics separately, either online at www.masteringphysics.com for or at the campus bookstore (for approximately ~ $45.00)
  Note: If you have an existing account, you do not need a new one
- ResponseCard RF-LCD Clicker (if you already own a clicker, you can use it. You cannot use an iPhone/iPad/other mobile device)

Lectures

Students are ***expected*** to attend lectures, where homework assignments will be collected, exams will be announced and administered, and the course material will be presented. During lectures, cell phones and other mobile devices may not be used. Attendance in lecture will be monitored using clickers (see below). Consistent failure to attend lecture may adversely affect your grade.

Clickers/ Participation

Lectures will include a number of questions which you will be asked to answer using your clicker. This is an integral part of the interactive learning process, and your participation is expected.

Lab

Labs are taught as a separate course (PHYS261), instructed by Professor LaPorta. ***You must be registered for the lab course and receive a passing grade for it in order to pass PHYS260.***

Discussion sections

Discussion sections will be conducted by Teaching Assistants. They will involve interactive tutorials, problem solving help, addressing students' individual concerns and questions, and are an important part of the course. Graded midterm exam and homework assignments will be returned during discussion section.

Homework

Homework will be assigned weekly and consists of two parts:
The first homework assignment will be due on 2/1.
The first is assigned through the MasteringPhysics website. The code for the course is DBHERTZ260S2012. Each assignment will be posted on Wednesdays at 5:00 pm and is due the following Wednesday at 11:59 pm.
The policies for MasteringPhysics questions will be as follows:

- Number of attempts per question: 5
- Deduction of credit for incorrectly answering a multiple-choice or true/false question.
  - Deduction per incorrect answer: 100%/(# of answer options −1)
- Deduct credit for opening a Hint.
  - Deduction per Hint opened: 5%

In addition to the MasteringPhysics homework, there will be a written portion which will be posted on the course blackboard site. This must be written up and handed in on paper before the beginning of class on Wednesday. Make sure that your homework is stapled together (do not use a paper clip) and that your name and section number are on every page in the top right corner.
Discussion and collaboration between students regarding homework assignments is strongly encouraged. However, all work you hand in *must* be your own. Copying another student's homework is a violation of the University's code of academic integrity and will be dealt with accordingly (see below).
Late homework will not be graded. Homework which is illegible will not be graded.
There will be 11 homework assignments (of each type) during the course. Of these, only the 9 best will be used for purposes of calculating your final grades (so you drop your two worst homework grades for each of the written and MasteringPhysics assignments) if you complete in all assignments).

Quizzes

Quizzes will be conducted weekly in lecture, using clickers. These will take place on Mondays (following homework being due on Wednesday). The material in each quiz will be based on the homework due the previous Wednesday.
The first quiz will be on 2/6.
For the quizzes, you will be assigned partial credit (1 point) for answering a question incorrectly, and full credit (5 points) for answering it correctly. If you do not attend the lecture, or do not answer, you will receive 0 points. All quizzes will be weighed equally for purposes of determining your final grade, regardless of the number of questions on the quiz.
Quizzes are there to test your conceptual understanding of the subject and ensure that you have understood the homework.
There will be 10 quizzes during the course. Of these, only the 8 best will be used for purposes of calculating your final grades (meaning that you can drop your two worst quiz grades if you complete all quizzes).

Exams

There will be three in-class exams (aka Prelims) (on 2/24, 3/28 and 4/25 during the normally scheduled lecture) and a one 2 Hr. Final exam (5/16, 6:30-8:30 pm).
Of the three in-class exams, only your best two grades will be counted for the final grade.
All exams are closed book and closed note exams.
Students will have access to a sheet containing important formulae and physical constants. The use of graphing calculators *is* permitted for exams.
The final exam is common to all Physics 260 lecture sections and its content will be determined by the three course instructors working together. For the final exam, students will be provided with a common formula sheet containing important formulae and relevant physical constants.

Final Grade

The overall course average will be a B−, with roughly 20% of students receiving an A+, A or A−, roughly 45% receiving a B+, B or B−, roughly 25% receiving a C+, C or C− and the remainder of students receiving a D or F.
The final grade will be based on the components with the following weights:

Portion	Contribution
Two best in-class exams	2×15% = 30%
Final Exam	25%
Quizzes (8 best)	10%
Homework (10 best)	10%
Labs (from PHYS261)	25%

The grades for each portion of the course will be curved to a common mean and standard deviation (assuming a roughly Gaussian distribution) in order to obtain a reasonable overall distribution.

Tutoring

The Physics Department has a free tutoring service, the Slawsky Clinic. It is located in Room 1214 in the Physics building. See http://www.physics.umd.edu/academics/ugrad/slawsky.html

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.

Students with disabilities

Students with disabilities should meet with the instructor at the beginning of the semester so that appropriate arrangements can be made to accommodate the student's needs. I am more than happy to accommodate students with special needs but you need to inform me ahead of time so that I can arrange for the appropriate measures to be taken.

Academic Integrity

I expect all students to comply with the University of Maryland's academic integrity policies, including the code of academic integrity and the honor pledge. Any and all failures to comply will result in a failing grade and will be reported to the Honor Council. Violations of the code include but are not limited to copying homework, using unauthorized materials in on exams, copying another student's exam, and using another student's clicker in lecture.

Absences and makeups

As a policy, there will be no make-ups for lectures, quizzes and homework assignments,because students are already permitted to drop their lowest two quiz and homework grades, their lowest mid-term exam grade, and their lowest five participation grades for lectures.
Make-ups beyond this built-in leeway will only be possible under extreme extenuating circumstances, generally limited to medical emergencies, for which documentation must be produced, signed by a health care professional.

Tentative Schedule of Lectures

Week	Class	Date	Day	Topic	Subtopics	Ch. in Knight	HW	Quiz
1	1	1/25	W		Introduction, Terms and Units			
	2	1/27	F	Oscillations	Simple Harmonic Motion, Potential Energy	14.1–14.3		
2	3	1/30	M		SHM Dynamics, Vertical Oscillations	14.4–14.5		
	4	2/1	W		The Pendulum, Damping and Forcing	14.6–14.8	1	
	5	2/3	F	Fluids	Pressure & Density in Fluids	15.1–15.2		
3	6	2/6	M		Pascal's Principle, Hydraulic Lift	15.3		1
	7	2/8	W		Archimedes' Law and Buoyancy	15.4	2	
	8	2/10	F	Waves	Wave types, Harmonic waves, Phase, Speed	20.1–20.3		
4	9	2/13	M		2&3D waves, Sound, Light, Intensity, Power	20.4–20.6		2
	10	2/15	W		The Doppler Effect, Superposition	20.7, 21.1	3	
	11	2/17	F		Standing Waves	21.1–21.4		
5	12	2/20	M		Interference, Beats	21.5–21.8		3
	13	2/22	W		Sound and Acoustics		4	
		2/24	F		***PRELIM 1: Oscillations, Waves and Fluids***	**14–15, 20–21**		
6	14	2/27	M	Thermal	Phases of Matter, Temperature, Ideal Gasses	16.1–16.5		
	15	2/29	W	Physics	Heat, The First Law, Calorimetry	17.3–17.6	5	
	16	3/2	F		Heat Transfer and Energy Conservation	17.8		
7	17	3/5	M		Ideal Gas Processes, Work	16.6, 17.2, 17.7		5
	18	3/7	W		Kinetic Theory, Pressure & Temperature (micro)	18.1–18.3	6	
	19	3/9	F		Kinetic Theory: Specific Heat, Equipartition	18.4–18.5		
8	20	3/12	M		Thermodynamic Cycles, Heat Engines	19.1–19.2		6
	21	3/14	W		Carnot, Refrigerators, Second Law	19.4–19.6	7	
	22	3/16	F		Entropy			
Spring Break								
9	23	3/26	M		Problem solving in Thermal Physics			7
		3/28	W		***PRELIM 2: Thermal Physics***	**16–19**		
	24	3/30	F	Electricity	Charge, insulators & conductors, Coulomb's Law	26.1–26.4		
10	25	4/2	M		Coulomb's Law: Superposition, Applications	26.4		
	26	4/4	W		The Electric Field	27.1–27.2	8	
	27	4/6	F		Electric Field Calculations: Point Charges	27.2–27.3		
11	28	4/9	M		Electric Field Calculations: Continuous Charges	27.4–27.5		8
	29	4/11	W		Dynamics of Charges in Electric Fields	27.6–27.7	9	
	30	4/13	F		Symmetry, Flux, Gauss	28.1–28.4		
12	31	4/16	M		Applications of Gauss	28.5–28.6		9
	32	4/18	W		Electric Potential Energy	29.1–29.3	10	
	33	4/20	F		Electric Potential Energy & Electric Potential	29.4–29.7		
13	34	4/23	M		Potential and Electric Field, Potential Calculations	30.1–30.4		10
		4/25	W		***PRELIM 1: Electrostatics***	**26–29**		
	35	4/27	F		Conductors and Electric Potential	30.4–30.7		
14	36	4/30	M		Currents, Resistivity, Conductivity, Resistance	31.1–31.4		
	37	5/2	W		Ohm's Law, Simple Circuits	31.5, 32.1–32.3	11	
	38	5/4	F		Circuits: Resistors in Parallel and Series	32.4–32.6		
15	39	5/7	M		Capacitors in Circuits, RC Circuits	32.8–32.9		11
	40	5/9	W		Overflow/Review			
		5/14	M		***FINAL EXAM (6:30–8:30 PM)***			