Physics 260 - General Physics II:

Vibration, Waves, Heat, Electricity
Syllabus

Spring 2012 Sections 0101, 0102, and 0103

Course description: General Physics: Second semester of a three-semester calculus-based general physics course. Oscillations, fluids, waves, thermodynamics, and electricity.

Pre-requisite MATH 141 and Physics 161

Co-requisite: Physics 261 this semester. This lab course = 25% of your Physics 260 grade. You need to pass Physics 261 and Physics 260 to get a single passing grade.

CORE status Physics 260 + 261 is designated a CORE Physical Science Lab (PL) Course

Instructor

Dr. James P. Lavine
3102 Physics Building
301- 405-5997
jplavine@umd.edu; lavine.james@gmail.com
Office hours:
Monday, Wednesday, and Friday 11:15 am – 12:15 pm and 1:15 pm – 2:15 pm, and by appointment
E-mail is the best way to contact me –
I will check my e-mail account several times a day.

Sections

Lecture: MWF 10:00 – 10:50 am, PHYS Bldg. 1410

Discussion sections:

TAs Hwanmun Kim hwanmun@umd.edu and Phys. Bldg. 0104
Office hours: Tuesday and Friday 2 to 3 pm
Matt Kretschmer mkretsch@umd.edu and Phys. Bldg. 0104
Office hours: Monday 1 to 3 pm

Section 0101: TA is Hwanmun Kim
Tuesday 8:00 am – 8:50 am (Phys. Bldg. 0405)

Section 0102: TA is Matt Kretschmer
Monday 3:00 pm – 3:50 pm (Math Bldg. 0101)

Section 0103: TA is Hwanmun Kim
Wednesday 11:00 am – 11:50 am (Math Bldg. 0307)

(Much of this Syllabus is based on that of Dr. D. Tata with his permission and on that of Dr. D. Hertz for Physics 260)

Textbook

Required: **Physics for Scientists and Engineers** Volumes 1, 2, 3, and 4, **second edition**, by **Randall D. Knight** (Pearson Addison Wesley).
If you already have an access number for Mastering Physics, it is valid for two years. If you need to purchase an access number then go to www.masteringphysics.com or go to the bookstore**.**

Lectures

Students are required to attend lectures, where homework assignments will be given, and exams will be announced and administered, and the course material will be presented. I have opened a course in ELMS for Physics 260 and I will post pdfs of the lectures.

Preparation

Not all material will be directly covered in lectures. Students are responsible for reading and understanding all material in assigned chapters, whether or not this material is explicitly treated in the lectures. In addition, I expect you to read the material in the text before the class that covers that chapter. Please see the Class Schedule below. It is especially useful to study the Examples in the text and to do the Stop to Think problems.

Discussion sections

Discussion sections will be conducted by the Teaching Assistant and are a forum where students can ask questions about the course material. Problems will be worked out with student participation in the discussion sections.

Lab

The lab, Physics 261, is taught as a separate course. You must be registered for Physics 261 and receive a passing grade in Physics 261.

Homework

Homework will be done through Mastering Physics. The assignments will appear in Mastering Physics.
Homework will typically be assigned on Wednesday and due by the following Wednesday before the start of class. ***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. **You will be allowed 5 attempts for each question. Do not waste them.**
(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 will 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. *First work out carefully a general analytical solution and second plug in the numbers.* This is especially true if the numbers are being randomized each time so everyone has different numbers.

In addition, you will sometimes be asked to submit written solutions to problems. This will allow the teaching assistant and the instructor to see how you are solving the homework problems. And if the lectures and discussion sections are helping you learn Physics. One or two of the problems will be graded. When the written homework is required will be announced in the lectures, in ELMS, and Mastering Physics, if possible.

Why You Need to do the Homework: One of the main ways you can understand Physics is by doing the homework. Do not wait until the night before it's due to start working on your homework. The homework can be expected to be difficult and it counts towards your final grade and in enabling you to succeed on your exams. A sure way to get an F in this course is for you not to do the homework or not give yourself enough time to work on it.

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. There have been issues working Mastering Physics through 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 (see above) and the class ID.
Your class ID for the 10 AM Lecture Class is MPLAVINE20005.
Mastering Physics provides a tutorial showing students how it works.

Exams

There will be three Mid-Term exams and one 2-Hour Final exam. You must take the Final exam in order to pass Phys 260. All exams are closed book and closed note exams. Equation sheets will be provided for the exams. The exams will include problems to be worked out in similar format as your homework problems. A calculator will be necessary for the exams.
Please note your lowest scoring Mid-Term exam score will be dropped. This should eliminate the need for a make-up Mid-Term exam except for extraordinary events.

Discussion Sections

Note on Discussion Sections: You must attend the discussion section you are assigned and you are supposed to go to your discussion section each week. **Your TA will give quizzes during the discussion sections and these will be included in your course grade.** Also, your TA will cover material (homework, quizzes and exams) that may not be covered elsewhere. Please come prepared and ask lots of questions, *i.e.* read the chapters, review your lecture notes, and try the homework problems. The TA is there to help you understand the physics of a situation when you are stuck, not to dole out answers. Don't forget that your TA is also a student, in this case a graduate student, and also has to take classes, do homework and teach other sections - TA's are still learning, are very busy and are not highly paid for all their effort. Please be respectful and understanding.
(From the Physics 161 Fall 2010 Syllabus of Prof. Fred Wellstood)

Excuses

From TeachingPolicies1112.pdf with adjustments for inclusion in this syllabus:
University policy (testudo.umd.edu/soc/atedasse.html) excuses the absences of students for illness, religious observances, participation in University activities at the request of university authorities and compelling circumstances beyond the student's control.
Medically Necessary Absence
Students who miss a single class (lecture, recitation, or lab) for a medical reason must make a reasonable effort to contact their instructor in advance, and upon return to class, present the instructor with a self-signed note which acknowledges that the

information provided is accurate. Faculty must accept this note; a student's failure to provide an accurate statement is a violation of the Honor Code.
(I will accept faculty a student's self- excusal for up to 3 subsequent absences. Then additional documentation from a health care provider is required.) Students who have a prolonged absence due to illness (multiple consecutive absences) are required to provide written documentation from a health care provider.
In the event a student is absent for a Mid-Term or the Final Exam, he or she must provide documentation of illness from a health care professional, as well as notify the instructor in advance.

Religious Observance

The University's policy on religious observance and classroom assignments and tests (president.umd.edu/policies/iii510a.html) states that students should not be penalized for participation in religious observances and that, whenever feasible, they should be allowed to make up academic assignments that are missed due to such absences. Students are responsible for notifying the instructor of projected absences within the first two weeks of the semester. This is especially important for final examinations. Instructors should take the validity of these notices at face value.

In practice for Physics 260 at 10:00AM:

Turning in late homework or missing an exam is not allowed without a valid documented excuse as defined by the University as above (medical problem, religious holiday, or serious family crisis). In all cases, a makeup assignment or makeup exam must be completed in a reasonable amount of time or you will receive a score of zero for the assignment or exam. The makeup test or assignment, and the due date, must be arranged by consulting with Dr. Lavine as soon as possible after it becomes apparent that an exam or assignment due date will be missed. If you are going to miss an assignment because of a religious holiday, it is your responsibility to inform Dr. Lavine in advance so that suitable arrangements can be made. Please see **Exams** above also.

Final Grade

The final grade will be based on the components with the following weights:

Two Mid-Term Exams: 2 x 15 %	= 30 %
Comprehensive Final Exam	= 25 %
Home work	= 15 %
Quizzes in Discussion Sections	= 5%
Lab grade (Physics 261)	= 25%

The final grade will be set at the end of the semester after all work is completed.
A histogram of total scores for the entire class will be plotted. Assuming that the distribution is reasonably bell-shaped, letter grades will be assigned so that students with scores in the top 20% will receive an A, the next lower 40% will receive a B, the next lower 25% will receive a C, and the remaining 15% will be split between D and F.
Final grade protests need to made in writing to me. My decision is then final.

Students with disabilities

Students with Disabilities (from TeachingPolicies1112.pdf)

The University is legally obligated to provide appropriate accommodations for students who have disabilities. The campus's Disability Support Service Office (DSS) works with students and faculty to address a variety of issues ranging from test anxiety to physical and psychological disabilities. If an instructor believes that a student may have a disability, DSS should be consulted (Dissup@umd.edu). Note that to receive accommodations, students must first have their disabilities documented by DSS. The office then prepares an Accommodation Letter for course instructors regarding needed accommodations. Students are responsible for presenting this letter to their instructors by the end of the drop/add period.

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 class schedule. Please watch the University website or text alerts for closure notices. If I cannot attend a class and the department does not have a substitute, I will attempt to give you advance warning by e-mail.

Academic Integrity

The student-administered University Honor Code and Honor Pledge (shc.umd.edu/code.html) prohibits students from cheating on exams, plagiarizing papers, submitting the same paper for credit in two courses without authorization, buying papers, submitting fraudulent documents and forging signatures. On every examination, paper or other academic exercise not specifically exempted by the instructor, students must write by hand and sign the following pledge,

"I pledge on my honor that I have not given or received any unauthorized assistance on this examination or assignment."

Compliance with the code is administered by the Student Honor Council, which strives to promote a community of trust on the College Park campus. Allegations of academic dishonesty should be reported directly to the Honor Council (4-8450) by any member of the campus community. For additional information, consult the Office of Student Conduct (studentconduct.umd.edu).

In addition, within Physics 161, while you may discuss the lectures and assignments with other students, you must submit your own work. Failure to do so also constitutes academic dishonesty.

Class Schedule

The following is my best guess. It is likely to be modified as we work through the material. The Mid-Term dates will remain fixed, but the covered chapters may vary.

Class Schedule for Physics 260 Spring 2012 at 10:00AM (Changes likely)

Lecture	Dates	Main Topics	Chapter in Knight
1	Wednesday Jan. 25	Introduction and Simple	14
2	Friday January 27	Harmonic Motion	14
3	Monday January 30	Oscillations	14
4	Wednesday Feb. 1	Oscillations	14
5	Friday February 3	Fluids	15
6	Monday February 6	Fluids	15
7	Wednesday Feb. 8	Fluids	15
8	Friday February 10	Travelling Waves	20
9	Monday February 13	Travelling Waves	20
10	Wednesday Feb. 15	Travelling Waves	20
11	Friday February 17	Travelling Waves	20
12	Monday February 20	Superposition of Waves	21
13	Wednesday Feb. 22	Superposition of Waves	21
14	Friday February 24	**Review of Chs. 14, 15, 20, 21**	14,15,20,21
15	**Monday Feb. 27**	**Mid-Term Exam**	14,15,20,21
16	Wednesday Feb. 29	Macroscopic Description	16
17	Friday March 2	of Matter	16
18	Monday March 5	Work, Heat, and the First	17
19	Wednesday March 7	Law of Thermodynamics	17
20	Friday March 9	Micro/Macro Kinetic Theory	18
21	Monday March 12	Micro/Macro Kinetic Theory	18
22	Wednesday March 14	Heat Engines	19
23	Friday March 16	Heat Engines	19
24	Monday March 26	and Refrigerators	19
25	Wednesday March 28	Thermo + **Review**	16-19
26	**Friday March 30**	**Mid-Term Exam**	16-19
27	Monday April 2	Electric Charges and Forces	26
28	Wednesday April 4	Electric Charges and Forces	26
29	Friday April 6	Problem solving	
30	Monday April 9	The Electric Field	27
31	Wednesday April 11	The Electric Field	27
32	Friday April 13	Gauss's Law	28
33	Monday April 16	Gauss's Law	28
34	Wednesday April 18	The Electric Potential	29
35	Friday April 20	The Electric Potential	29
36	Monday April 23	Potential and Field	30
37	Wednesday April 25	Potential and Field + **Review**	26-30
38	**Friday April 27**	**Mid-Term Exam**	26-30
39	Monday April 30	Currents and Resistance	31
40	Wednesday May 2	Currents and Resistance	31
41	Friday May 4	Fundamentals of Circuits	32
42	Monday May 7	Fundamentals of Circuits	32
43	**Wednesday May 9**	**Review of the course**	

Final Exam = Monday May 14, 2012 6:30 to 8:30 PM