

Syllabus for PHYS260 and PHYS260H - Fall 2011

GENERAL PHYSICS: OSCILLATIONS, FLUIDS, WAVES, HEAT AND ELECTRICITY

LECTURES: Tu Th 2:00 – 3:15 pm in Physics 1410

PROFESSOR MICHELLE GIRVAN:

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Phone: 301-405-1610

Office Hours: Mon. 11am-12 pm, Physics Building, Room 4316

Mon. 1-2pm, AV Williams 3327

Course website: can be accessed via elms.umd.edu

OFFICIAL COURSE DESCRIPTION:

PHYS 260 General Physics: Oscillations, Fluids, Waves, Heat, and Electricity; (3credits) Grade Method: REG/P-F/AUD. Prerequisite: MATH141 and PHY161. Corequisite: PHYS261. Credit will be granted for only one of the following: PHYS142; PHYS260 and PHYS 261 (Formerly: PHYS262) or PHYS272. Formerly PHYS 262. Second semester of a three-semester calculus-based general physics course. Oscillations, waves, fluids; thermodynamics; electrostatics and 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. CORE Physical Science Lab (PL) course only when taken concurrently with PHYS 261. If purchasing used books additional software may be required.

SECTIONS:

| Section | Time | Location | Instructor |
|-------------------|----------------|-----------|--------------------|
| PHYS260 sections: | | | |
| 301 | M 12:00-12:50 | PHY 1219 | Anton de la Fuente |
| 302 | W 11:00-11:50 | PHY 1219 | Anton de la Fuente |
| 303 | Tu 12:00-12:50 | MTH B0429 | Jeffrey Demers |
| 304 | W 9:00-9:50 | PHY 1201 | Zachary Raines |
| 305 | Tu 1:00-1:50 | PHY 1219 | Anton de la Fuente |
| PHYS260H section: | | | |
| 301 | M 12:00-12:50 | PHY 1402 | Dr. Girvan |

TA office hours TBA.

LAB SECTIONS: You must enroll in Physics 261 and complete all the labs in order to pass Physics 260.

REQUIRED TEXTBOOK: Physics for Scientists and Engineers, by Randall D. Knight (2nd Edition): volumes 1-4. Note that we will cover chapters 14 and 15 also in this course which are in volume 1.

RECOMMENDED TEXTBOOKS: There are many books that you may find helpful when Knight is not, including Physics for Scientists and Engineers, by Serway and Jewett, Physics by Paul A. Tipler, Worth and Fundamentals of Physics by David Halliday, Robert Resnick, and Jearl Walker. There are also many earlier editions of these and other calculus based physics textbooks printed in the last 10-20 years that

contain much the same material and can be purchased quite inexpensively on the web or at local used book stores or found in the Engineering and Physical Sciences Library.

LECTURE NOTES: Lecture notes will be posted on elms after each lecture. In order to encourage you to think through the clicker questions during lecture, lecture notes will not be posted before lecture.

GRADES: Your total numerical score for the course will be computed by summing your scores on the final exam, the three midterms, the homework (electronic and written) and the lab with the following weight:

For PHYS260 Sections:

| | |
|--|------|
| Final exam | 20 % |
| Midterm exams | 24 % |
| Quizzes | 6 % |
| Homework (Written 5% + Electronic 15%) | 20 % |
| Participation | 5 % |
| Physics 261 Lab | 25 % |

For PHYS260H:

| | |
|---|------|
| Term paper* | 8 % |
| Final exam | 18 % |
| Midterm exams | 21 % |
| Quizzes | 5 % |
| Homework (Written 4.5% + Electronic 13.5 %) | 18 % |
| Participation | 5 % |
| Physics 261 Lab | 25 % |

*The term paper will be a 4-5 page paper describing an application of the material in this course in an engineering context. Details of the term paper assignment will be discussed in section, and an official description of the requirements will be distributed in late September.

IMPORTANT GRADING NOTES:

(1) Students who do not complete all of the lab experiments will automatically get an F in both Physics 260 and Physics 261: **YOU MUST BE ENROLLED AND PASS PHYSICS 261 IN ORDER TO PASS PHYSICS 260.**

(2) You must take the Final exam in order to pass the course.

(3) Dropped grades: There will be three midterm exams, the midterm exam component of your grade will be calculated from only your two best scores. Similarly, your quiz grade will be calculated from your best 3 of 4 quizzes, and your homework grades will be calculated from your best 8 of 10 homeworks (written and online homeworks graded separately.)

(4) Participation: Lectures will include a number of questions which students will answer using their clickers. Credit is assigned based on whether or not questions are answered, not on whether a correct answer is given. For purposes of your participation grade, each lecture with clicker questions will be worth an equal amount, regardless of the number of questions asked. Your grade for each such lecture will be equal to the fraction of clicker questions you answered. In other words, if there were twelve questions in a lecture, and you answered nine of them, you would receive 0.75 of full credit for that lecture. Your participation grade for lectures will be determined after dropping your 3 lowest participation scores for the relevant lectures. Your lecture participation grade determined this way will count as 80% of your participation grade, the remaining 20% will be determined subjectively from your participation in section.

(4). For full credit for any written homework or exam problem you must show your work. Therefore, in addition to the correct answer, you must justify your approach, if possible.

EXAMS: All quizzes and exams (including the final) will be closed book, with no crib sheets allowed, either electronic or paper unless otherwise announced. A formula sheet will be provided for midterm exams and the final.

Note: You may need a calculator during the quizzes and exams, especially one with "scientific" capabilities, i.e., trig, log, exponential, roots, and powers. Memories, parentheses, radian/degree conversion, etc., are also very helpful. We reserve the right to clear all memories on your calculators at the start of any exam. For that reason it is best to use a simple inexpensive calculator for the exams. Solutions to the exam questions will be posted. Sample exams from previous semesters will be made available for viewing.

HOMEWORK: There will be weekly homework assignments. These will consist of both electronic homework and a few conventional written problems to be turned in. We will use Mastering Physics for electronic homework. You will need a code (which comes with the book) to access the electronic homework.

- Mastering Physics student codes are valid for 2 years. So, if you have used Mastering Physics within this period, then you can access it this semester using the same login credentials (just go to "Returning User").
- If you purchased a used book or only new volumes 2-4 (which do not come with Mastering Physics access code), then you can purchase access to Mastering Physics from www.masteringphysics.com.
- Or, you can purchase a volume (along with the code) directly from the publishers at www.mypearsonstore.com. who offer a 10% discount over bookstore price, and free FedEx shipping.

GETTING STARTED WITH MASTERING PHYSICS: Instructions for logging onto Mastering Physics are located on a pamphlet included in your text and are listed below for your convenience.

1. Go to www.masteringphysics.com
2. Find the course textbook image (Knight 2st edition) and click on it
3. Next you will need to register.
 - a. Login ID (you create)
 - b. Password (you create)
 - c. Access code
 - d. Course ID: MPGIRVAN90128
 - e. Student ID (and User ID): your UMID number

For any technical problems please contact the mastering physics support team by phone: (888) 547-4415 between normal business hours or by email: support@masteringphysics.com

WHEN HOMEWORK IS ASSIGNED AND DUE: Online homework will generally be assigned on Wednesday (the written problem will be posted on the course website) and due by the following Wednesday. You must submit your answers for the electronic homework problems over the internet and the written homework in class (either Tu or Th, as specified). Solutions for the homework will be posted on the course website.

NOTE ABOUT ELECTRONIC HOMEWORK: In the case of the electronic homework, note that the software will randomize the numbers for each student, so be careful and remember that other students working on exactly the same problems will have other numbers! The best way to do physics problems is to first work out a general formula for the answer and then plug in the numbers at the end. This is especially true if the numbers are being randomized so everyone has different numbers.

WHY YOU SHOULD DO THE HOMEWORK: One of the main ways you will 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 is supposed to be hard and it counts a lot for your grade. A sure way to get an F in this course is to not do the homework or not give your self enough time to work on it.

TUTORING: The physics department has a free tutoring service: The Slawsky Clinic. It is located in room 1214 in the physics building. See

ACADEMIC HONESTY: Note that although you are encouraged to discuss homework and class material with other students, any work you submit must be your own and should reflect your own understanding. Academic dishonesty, such as cheating on an exam or copying homework, is a serious offense which may result in suspension or expulsion from the University. The University of Maryland, College Park 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. It is very important for you to be aware of the consequences of cheating, fabrication, facilitation, and plagiarism. For more information on the Code of Academic Integrity or the Student Honor Council, please visit <http://www.shc.umd.edu>.

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 quiz and midterm exam grades and their lowest two homework grades. Make-ups beyond this built-in leeway will only be possible under extreme extenuating circumstances. Appropriate documentation is required in these cases.

Tentative Schedule (Quizzes are held in lecture on the date indicated):

| Class | Date | Topic | Chapters | Quiz | Notes |
|-------|-------|--------------------------|------------------------|------|------------------------|
| 1 | 9/1 | Oscillations | 14.1-14.4 | | |
| 2 | 9/6 | Oscillations | 14.5-14.6 | | |
| 3 | 9/8 | Oscillations, Fluids | 14.7, 14.8, 15.1, 15.2 | | |
| 4 | 9/13 | Fluids | 15.3, 15.4 | | Online HW 1 Due 9/14 |
| 5 | 9/15 | Fluids | 15.5 | 1 | Written HW 1 Due 9/15 |
| 6 | 9/20 | Waves | 20.1-20.3 | | Online HW 2 Due 9/21 |
| 7 | 9/22 | Waves | 20.4, 20.5, 20.7 | | Written HW 2 Due 9/22 |
| 8 | 9/27 | Waves | 20.6, 21.1-21.4 | | Online HW 3 Due 9/28 |
| 9 | 9/29 | Waves | 21.5-21.8 | | Written HW 3 Due 9/29 |
| 10 | 10/4 | Thermodynamics | 16.1-16.5 | 2 | Online HW 4 Due 10/5 |
| 11 | 10/6 | Thermodynamics | 16.6, 17.1-17.3 | | Written HW 4 Due 10/6 |
| 12 | 10/11 | 1st Exam | 14, 15, 20, 21 | | |
| 13 | 10/13 | Thermodynamics | 17.3-17.8 | | |
| 14 | 10/18 | Thermodynamics | 18.1-18.3 | | Online HW 5 Due 10/19 |
| 15 | 10/20 | Thermodynamics | 18.4-18.6 | | Written HW 5 Due 10/20 |
| 16 | 10/25 | Thermodynamics | 19.1-19.2 | 3 | Online HW 6 Due 10/26 |
| 17 | 10/27 | Thermodynamics | 19.3-19.5 | | Written HW 6 Due 10/27 |
| 18 | 11/1 | Thermodynamics | 19.6 | | Online HW 7 Due 11/2 |
| 19 | 11/3 | Electrostatics | 26.1-26.4 | | Written HW 7 Due 11/3 |
| 20 | 11/8 | 2nd Exam | 16, 17, 18, 19 | | |
| 21 | 11/10 | Electrostatics | 26.5, 27.1-27.2 | | |
| 22 | 11/15 | Electrostatics | 27.3-27.7, 28.1-28.2 | | Online HW 8 Due 11/16 |
| 23 | 11/17 | Electrostatics | 28.3-28.6 | 4 | Written HW 8 Due 11/17 |
| 24 | 11/22 | Electrostatics | 29.1-29.7 | | Written HW 9 Due 11/22 |
| 25 | 11/29 | Electrostatics | 30.1-30.7 | | Online HW 9 Due 11/23 |
| 26 | 12/1 | 3rd Exam: Electrostatics | 26, 27, 28 | | |
| 27 | 12/6 | Circuits | 31.1-31.5, 32.1-32.2 | | Online HW 10 Due 12/7 |
| 28 | 12/8 | Circuits | 32.3-32.9 | | Written HW 10 Due 12/8 |
| 29 | 12/13 | Overflow lecture | | | |

