Course Outline for Physics 112

Course:
Physics 112 (Physics 2)
Winter Term, 2016
Department of Physics and Astronomy, University of Waterloo
Instructors:
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Office hours will be posted on LEARN

Objectives:
To develop the ability to solve problems in areas related to oscillations and waves, electricity and magnetism, and optics.

Intended Learning Outcomes
Should be able to solve physics problems in course related areas.

To accomplish this, the student should be able to:
  1. Understand physical concepts associated with oscillations, waves, sound, electricity and magnetism, and optics
  2. Apply concepts of force and energy and recognize when acceleration is not constant
  3. Solve simple physical systems using physical concepts
  4. Draw relevant sketches from information given in word problems
  5. Develop physically relevant equations from information given in word problems
  6. Convert complex problems into a series of sub-problems and solve
Text:

Course Website:
http://learn.uwaterloo.ca

Course Outline (subject to change):
Oscillations about equilibrium, chapter 13: 1-5  4 Lectures
Waves & Sound, chapter 13: 7-11  5 Lectures
  Chapter 14: 1-5, 7-10
Electric Forces & Fields, chapter 15: 1-5  5 Lectures
Electric Potential & Energy, chapter 16  5 Lectures
Current and Resistance, chapter 17: 1-6  4 Lectures
  Chapter 18: 1-4
Magnetism, chapter 19  4 Lectures
Magnetic Flux & Induction, chapter 20  1 Lecture
Geometrical Optics, chapter 22: 1-3, 7  5 Lectures
  Chapter 23: 1-4, 6

Grading:
There are 2 possible grading schemes, you will be given the higher grade.

Scheme 1
Weekly online assignments:  13%
Weekly self-marked assignments:  3%
Participation (clickers):  3%
Midterm:  30%
Final examination:  51%

Scheme 2
Final examination:  100%  (please read section 5 of Class Policy on Missed Midterms and Exams for important information if you are counting on this option and are sick for the exam)
Weekly online assignments:
Students may consult each other on assignments, with the expectation that most of the work submitted has been done individually. Please see the notes on academic integrity and discipline below.

The first assignment will be available at 8:00 am on January 12th and will be due at 11:30 pm on January 19th. In the Assignment, you have 5 attempts to get the answer.

Questions will be assigned each week starting Tuesday, January 12. All the assignment questions will be graded each week. The online assignment must be completed by the following Tuesday at 11:30 pm. In other words, you have 7 days to complete the assignment. Some assignments have later due dates due to holidays, midterms and reading week. Check the due dates carefully.

Assignments will be completed using WebAssign, which must be accessed through their website (www.webassign.net/login.html). You will need to register for WebAssign using the code that came with your textbook. If you did not purchase a new 10th edition textbook in the bookstore or lost your code, you will need to purchase an access code from the publisher at www.nelsonbrain.com/shop/micro/UWaterloo-PHYS111-112 (The cost is $49.95 which is the lowest price we could negotiate.). Codes that come with the textbook can be used for two courses so you do not need to buy another code if you used yours for PHYS 111. Codes purchased directly from the website are only good for one semester.

To join the course on WebAssign, you will need to enter the “Class Key” which is “uwaterloo.on 6106 1254” without the quotes.

There are a total of 11 weekly assignments and all are weighted equally. The lowest grade assignment will be dropped when calculating the average weekly assignment grade.

Weekly self-marked assignments:
Students may consult each other on self-marked assignments, with the expectation that most of the work submitted has been done individually. Please see the notes on academic integrity and discipline below.

The first self-marked assignment will be available at 8:00 am on January 19th and will be due at 11:30 pm on January 26th.

An exam-like problem will be posted each week on LEARN. You will enter your numerical solutions to the problem on LEARN within 7 days. Solutions with a grading scheme will then be posted. You will compare your written solution to the problem with the posted solution and then assign yourself a grade consistent with the marking scheme using LEARN. Do not be too harsh in your self-assessment; feel free to consult with your instructor if in doubt. Submitting a self-marked grade without having previously submitted the numerical solutions will be considered a violation of academic integrity and will be reported to the Associate Dean.

There are a total of 9 weekly self-marked assignments and all are weighted equally. The lowest grade assignment will be dropped when calculating the average weekly assignment grade.
Participation (clickers):
Clickers will be used in class. The maximum grade is 3%. 2 points will be given for each clicker response with an additional 1 point for each correct response. Your clicker grade will be calculated as 3 * (your total clicker points) / (total clicker points possible during the semester). Note that clickers may not be used in all lectures and some lectures may have more questions than others. Clicker use will start the second week of class. Using more than one clicker in class will be considered a violation of academic integrity and will be reported to the Associate Dean.

Mid-term Test:
One midterm is scheduled for this course. It will be a long answer midterm and will not be multiple choice. The midterm will be hand marked and part marks will be given. All work must be shown to receive credit for any solutions. An equation sheet will be provided.

The midterm will be held Thursday, February 11, 2016 from 5:30-6:45 pm.
The location will be announced later on the web site.

Final Examination:
This will be a two and a half hour exam scheduled by the Registrar’s office during the final exam period. The exam will cover the entire semester. An equation sheet will be provided.

Help Session (tutorial):
A tutorial is scheduled for one hour each week starting the week of January 11. The tutorial instructor will provide assistance in problem solving and with any difficulty you may encounter with the material covered in the lectures. You may attend more than one tutorial session each week but please give seating priority to those registered for the time slot. The Friday tutorial at 10:30 held in DWE 1502 will be held in PHY 235 instead.

Class Rules:
You must contact your instructor and have a doctor’s note if you miss a midterm or final exam due to illness. See the Class Policy on Missed Midterms and Exams below. If you are ill and cannot complete an assignment on time a doctor’s note is not required unless this happens often.

All students wishing to use computer laptops in class must sit at the back of the classroom. This is to minimize noise and distraction for non-computer users. Laptops should only be used for course related purposes.

All cell phones must be set to silent mode.

Conflicts with Scheduled Midterms:
If you have conflicts with a midterm (e.g. religious activities, varsity sports competitions, other course commitments), contact your instructor at least two weeks prior to the midterm (or sooner, if possible) to explain the nature of the conflict and to discuss possible accommodations. Note that student travel plans are not considered acceptable grounds for granting an accommodation.
Class Policy on Missed Midterms and Exams:
If you do not write a midterm, and have not made an arrangement with your instructor, your grade will be zero on that midterm. If you do not write the final exam, you will receive a final course grade of DNW (did not write), which is equivalent to 32%.

If you missed a midterm or exam due to illness or another valid, documentable reason, you can avoid a zero grade / DNW through the 5 part process described below.

1. **Contact your instructor within 24 hours of the missed midterm or exam.** Phone messages and emails can be received 24 hours per day.
2. Get documentation to explain your absence.
   a. If you are ill, have yourself examined at University of Waterloo campus Health Services **before or within 24 hours** of the missed exam. They will complete a Verification of Illness form (VIF) for you. Assessment of illness must be based on an actual examination **before or within 24 hours** of the midterm or exam rather than an account of how you felt several days ago. If you are ill on a weekend, during off-hours, while out-of-town or receiving ongoing care from a family physician or specialist, it is acceptable to provide documentation from other health service providers. Information should include date of physician assessment, dates of illness, level of incapacitation and whether the diagnosis was made by the physician or based on description by the student. If you do not have University of Waterloo's VIF with you at the time you are seen by the external health service provider, or the documentation provided does not include the required information, you will need to go back and have them complete and sign the **Verification of Illness Form**. This official verification is necessary before any action can be taken.
   b. For other extenuating circumstances that are not illness related, for which the Verification of Illness form is not appropriate, official documented proof that something has occurred will be required (consult with your instructor). It is understood that sometimes events occur beyond your control so if in doubt, contact your instructor if you have a compelling reason.
3. Bring your documentation to the Science Undergraduate Office (ESC 253) once you are feeling better. Your instructor will receive notification automatically by e-mail once you have done so. Contact your instructor if you are unable to take your documentation to the Science Undergraduate Office within a week.
4. Bring a copy of your documentation to your instructor. **The Science Undergraduate Office does not do this.** You have two weeks from the date of the missed midterm or exam to clear your zero/DNW grade.
5. Your instructor will review the documentation and make a decision as to whether it will be accepted or if you will be assigned a grade of zero/DNW. **Note that filing documentation with the Science Office does NOT automatically excuse the missing of a midterm or exam.** The information provided on the documentation will be evaluated when deciding whether a student should be excused. Students should carefully consider the wisdom of missing a midterm or exam.
   - A VIF will only be accepted for a missed exam if you are in good standing in the course. This means that you have attempted at least 8 weekly assignments and your average assignment grade must be over 50% (this is calculated over all
If you have not completed at least 8 assignments by their due dates and/or your assignment average grade is less than 50%, the VIF will not be accepted and you will receive a grade of DNW (did not write, which is a failure) for the course.

Again, failure to carry out steps 1-4 above will result in a grade of zero on a midterm or a DNW on a final exam.

The following rules apply when the student’s documentation has been found acceptable:

- midterm: weight transferred to final (it may sometimes be possible to write a makeup midterm)
- final exam: deferred exam to be written during makeup exam period

**Academic Integrity**: In order to maintain a culture of academic integrity, members of the University of Waterloo community are expected to promote honesty, trust, fairness, respect and responsibility. [Check http://www.uwaterloo.ca/academicintegrity for more information.]

**Grievance**: A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. Read Policy 70, Student Petitions and Grievances, Section 4, [https://uwaterloo.ca/secretariat/policies-procedures-guidelines/policy-70](https://uwaterloo.ca/secretariat/policies-procedures-guidelines/policy-70). When in doubt please be certain to contact the department’s administrative assistant who will provide further assistance.

**Discipline**: A student is expected to know what constitutes academic integrity [check http://www.uwaterloo.ca/academicintegrity] to avoid committing an academic offence, and to take responsibility for his/her actions. A student who is unsure whether an action constitutes an offence, or who needs help in learning how to avoid offences (e.g., plagiarism, cheating) or about “rules” for group work/collaboration should seek guidance from the course instructor, academic advisor, or the undergraduate Associate Dean. For information on categories of offences and types of penalties, students should refer to Policy 71, Student Discipline, [https://uwaterloo.ca/secretariat/policies-procedures-guidelines/policy-71](https://uwaterloo.ca/secretariat/policies-procedures-guidelines/policy-71). For typical penalties check Guidelines for the Assessment of Penalties, [https://uwaterloo.ca/secretariat/policies-procedures-guidelines/guidelines/guidelines-assessment-penalties](https://uwaterloo.ca/secretariat/policies-procedures-guidelines/guidelines/guidelines-assessment-penalties).

**Appeals**: A decision made or penalty imposed under Policy 70 (Student Petitions and Grievances) (other than a petition) or Policy 71 (Student Discipline) may be appealed if there is a ground. A student who believes he/she has a ground for an appeal should refer to Policy 72 (Student Appeals) [https://uwaterloo.ca/secretariat/policies-procedures-guidelines/policy-72](https://uwaterloo.ca/secretariat/policies-procedures-guidelines/policy-72).

**Note for Students with Disabilities**: AccessAbility Services, located in Needles Hall, Room 1132, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with AccessAbility Services at the beginning of each academic term.