Science 206 – The Physics of How Things Work
Course Outline - Fall 2015
Department of Physics and Astronomy, University of Waterloo
Instructor: Professor Stefan Idziak (idziak@uwaterloo.ca)
Office: Physics 250; email Prof. Idziak to make an appointment or drop by my office
All classes meet Thursdays from 6:30-9:30 pm in Physics room 145
Website: learn.uwaterloo.ca

Objectives:
To gain an understanding of how different devices work and to develop an appreciation for the physics behind the applications.

Textbook:

Two copies of the 4th edition are available in reserve at the library (UWD 1554)
Six copies of the first edition are available in reserve at the library (UWD 1520)

Prerequisites:
None

Material to be covered (by lecture number):
Some changes may be made.

1. Motion (Sept. 17)
2. Resonance (Sept. 24)
3. Balloons and Bubbles, Pressure (Oct. 1)
4. Lecture still being developed (Oct. 8)
5. Air Cleaners and Xerox (Oct. 15)
6. Midterm (Oct. 22)
7. Electricity (Oct. 29)
8. Radio and Television (Nov. 5)
9. Microwaves and CDs (Nov. 12)
10. Alternate Energy (Nov. 19)
11. Rockets and the Nuclear Bomb (Nov. 26)
12. Medical Imaging (Dec. 3)
Marking Scheme (Best of):

Scheme One
- Multiple Choice Mid Term Test (October 22, 2015, in class) 40%
- Multiple Choice Final Exam (Date to be announced) 60%

Scheme Two
- Multiple Choice Final Exam (Date to be announced) 100%

Class Rule:
- All cell phone ringers must be turned off during class. Laptops may only be used for course related matters (i.e. note taking).

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.

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
- 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 . 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. For typical penalties check Guidelines for the Assessment of 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.

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.