Physics and Astronomy  
University of Waterloo  

Term and Year of Offering: Winter 2015  
Course Number and Title: Phys 132L Measurements Lab  

Instructor’s Name, Office Location, Office Hours, Contact: Jeff Gardiner, PHY 260, 8:30-4:30 M-F

Course Description:  
Select experiments in simple harmonic motion, biophysics, wave motion and sound, electrostatic force and potential, electric current and power, resistance and resistivity, capacitors, DC circuits, thermal properties of solids, diffraction and interference and charged particles in a magnetic field.

Course Objectives:  
(1) To provide direct experience with the physical phenomena studied in the classroom.

(2) To teach systematic methods of data collection and analysis, and the clear and accurate reporting of results.

(3) To teach the use of standard physical instruments and the use of computer aided data acquisition and analysis.

(4) To illustrate and clarify various points covered in lectures.

Evaluation: The course grade will be based on 10 lab reports, and two final examinations, one of which is to be held during the last week of lectures the second during the Official Examination Schedule. The breakdown is as follows: 

Lab Assignments: 75%  
Final Examinations: 25%

Lab Assignments: There will be 10 lab assignments each marked out of 20

Rules for Group Work in Lab Assignments: Students can work in pairs, but each student needs to submit his/her own version of the working and results. The following experiments are to be performed:

1. The Oscilloscope  
2. Biophysics of the Heart  
3. Speed of Sound  
4. Resistivity and Heat  
5. Optical Interference
6 Simple Harmonic Motion
7 Standing waves on a Wire
8 Kirchoff’s rules and multiloop circuits
9 Electrostatic Forces and Permitvitty of space
10 Charge to Mass ratio of the Electron

Lab Deadline: Labs have to be handed in to the TA by the end of your lab section.

Missed Labs: Any student who misses a lab should make arrangements with course instructor as soon as possible afterwards to complete the lab

Pick up Marked Labs: Marked lab assignments will be available from your TA during your lab section. Your TA will arrange a time to hand back your final lab.

Academic Integrity, Grievance, Discipline, Appeals and Note for Students with Disabilities: see www.uwaterloo.ca/accountability/documents/courseoutlinestmts.pdf

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 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, www.adm.uwaterloo.ca/infosec/Policies/policy70.htm. 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 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, www.adm.uwaterloo.ca/infosec/Policies/policy71.htm. For typical penalties check Guidelines for the Assessment of Penalties, www.adm.uwaterloo.ca/infosec/guidelines/penaltyguidelines.htm.

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) www.adm.uwaterloo.ca/infosec/Policies/policy72.htm.
Note for Students with Disabilities: The Office for persons with Disabilities (OPD), 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 the OPD at the beginning of each academic term.