Physics and Astronomy  
University of Waterloo  
Term and Year of Offering: Fall 2013  
Course Number and Title: Phys 232L Measurements Lab

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

Course Description:  
This laboratory course teaches programming (e.g. LabVIEW) for the computer interfacing of physics experiments and automatic data collection.

Course Objectives:

(1) To provide direct experience with scientific programming as it is used in data collection and analysis in a physical laboratory.

(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 hardware I/O for retrieval and creation of external signals.

(4) To investigate different physical concepts (circuit analysis, magnetic fields, semiconductor devices).

Evaluation: The course grade will be based on 5 lab reports (#5 is a project lab), and a final examination which will be held during the last week of term. The breakdown is as follows:

Lab Assignments 75%  
Final Examination 25%

Lab Assignments: There will be 5 lab assignments each marked out of 20

Rules for Group Work in Lab Assignments: Each student is assigned their own station. Work is done independently.

EXPERIMENT 1: The LabVIEW Environment  
EXPERIMENT 2: LabVIEW: Loops, case and sequence structures  
EXPERIMENT 3: LabVIEW: Modularity and sub-VI’s  
EXPERIMENT 4: LabVIEW: GPIB communication  
EXPERIMENT 5: Project Lab (To be handed out in class)

Lab Deadline: Labs are to be handed in to the submission box (outside PHY 211A) by 5:30pm the day following the lab session.
**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 in which you may review your project lab.

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