Physics 232 – Modern Physics Laboratory

2019 – 2020, Winter Term 2

General Info

Course: Physics 232 (3 credits)
Pre-reqs: MATH 101 and one of PHYS 102, PHYS 121, PHYS 122
PHYS 231 recommended
Lecture: WF 09:30–10:30 (EME 2181)
Laboratory: L01 Wed. 14:30–17:30 (SCI 241)
         L02 Tue. 14:00–17:00 (SCI 241)
You must register in one of the lab sections
URL: https://people.ok.ubc.ca/jbobowsk/phys232.html

Instructor: Jake Bobowski
Office: SCI 261
Email: Jake.Bobowski@ubc.ca

Overview

In this course you will perform a set of experiments designed to compliment your theoretical physics education and to enhance your abilities as an experimentalist. Each experiment will be different such that a range of topics and phenomena are covered (modern physics, waves, radiation, thermodynamics, ...). You will have two lab periods to complete each experiment. A variety of experimental techniques and data analysis methods will be encountered.

The lecture portion of the course will be used to discuss the treatment of uncertainties and data analysis methods. Attendance is mandatory for both the seminars and laboratory sessions.
In the Lecture & Lab
I will do my best to present material and respond to questions in a clear and logical way. However, you must take responsibility for your own learning. Come to the lab prepared. Read and study the manual before coming to the lab, ask questions, ask for clarification, contribute to discussions, offer ideas, . . . There will be assignments throughout the term. The assignments will allow you to apply what you’ve learned in the lectures and from the textbook. You will not be permitted to work on assignments during the lectures or labs.

Be considerate of fellow students: no cell phones, texting, reading email, web browsing, social networking, . . . during class.

Lab Notebook
Your lab notebook is a very important part of the course. Your notebook should be a complete log of what you do in the lab. It should contain enough information that a knowledgeable person could reproduce your results based solely on what you wrote in your notebook (without having the lab manual!). It should be complete and coherent enough that if you were to come back to your notebook several months (or years!) later, you would be able to understand exactly what you did in the lab and why you did it. You need to write things down in your lab book as you do them (i.e. not on scrap paper and not sometime “later”).

Pre-Lab Assignments
Pre-lab assignments are due at the start of the lab. Late pre-labs assignments will not be graded and you will not be permitted to work on pre-lab assignments during the lab. All pre-lab assignments will graded a scale of 0 to 2.
Textbook
The required textbook for the course is:
*An Introduction to Error Analysis: The Study of Uncertainties in Physical Measurements*
by John R. Taylor.

You may also find *Data Reduction and Error Analysis for the Physical Sciences* by Bevington & Robinson to be a useful resource (not required).

You are also required to have **two** yellow lab books (available from the UBCO bookstore). You may continue to use the lab notebooks that you were using in PHYS 231. Material submitted on loose pages (stapled or not) will not be graded.

Office Hours
My office is SCI 261. Formal office hours are published online (https://people.ok.ubc.ca/jbobowsk/schedule/Jake-2019-2020schedule-Term2.pdf). Otherwise, drop by or email me to schedule an appointment.

Evaluation
Note that, the grading scheme below may evolve.

- Pre-Lab Exercises: 5%
- Assignments: 12.5%
- Lab Notebook: 30%
- Formal Report: 25%
- Final Exam: 27.5%

***IMPORTANT***
You must receive at least 50% on the final exam to pass PHYS 232.

All of the material that you submit for grading must be your own work. Of course, you are encouraged to discuss and compare concepts, data, and analysis with others. However, all written text, plots, figures, calculations, ... that you present must be your own work. Plagiarism from any source will not be tolerated. Making your work available for others to plagiarize will likewise not be tolerated.

Late Policy
Late assignments and lab notebooks will not be accepted. Assignments submitted by email will not be graded. **No exceptions.**
Official Policies of UBCO/The Barber School

Academic Integrity

The academic enterprise is founded on honesty, civility, and integrity. As members of this enterprise, all students are expected to know, understand, and follow the codes of conduct regarding academic integrity. At the most basic level, this means submitting only original work done by you and acknowledging all sources of information or ideas and attributing them to others as required. This also means you should not cheat, copy, or mislead others about what is your work. Violations of academic integrity (i.e., misconduct) lead to the break down of the academic enterprise, and therefore serious consequences arise and harsh sanctions are imposed. For example, incidences of plagiarism or cheating usually result in a failing grade or mark of zero on the assignment or in the course. Careful records are kept to monitor and prevent recidivism.

A more detailed description of academic integrity, including the policies and procedures, may be found at [http://www.calendar.ubc.ca/okanagan/index.cfm?tree=3,54,111,959](http://www.calendar.ubc.ca/okanagan/index.cfm?tree=3,54,111,959).

If you have any questions about how academic integrity applies to this course, consult with the instructor.

Disability Assistance

If you require disability-related accommodations to meet the course objectives, please contact the Coordinator of Disability Resources located in the Student Development and Advising area of the student services building. For more information about Disability Resources or academic accommodations, please visit the website at [http://www.ubc.ca/okanagan/students/drc/welcome.html](http://www.ubc.ca/okanagan/students/drc/welcome.html).

Equity, Human Rights, Discrimination and Harassment

UBC Okanagan is a place where every student, staff and faculty member should be able to study and work in an environment that is free from human rights-based discrimination and harassment. Under UBC’s Policy 3 on Discrimination and Harassment, UBC prohibits discrimination and harassment on the basis of the following grounds: age, ancestry, colour, family status, marital status, physical or mental disability, place of origin, political belief, race, religion, sex, sexual orientation or unrelated criminal conviction.

If you require assistance related to an issue of equity, discrimination or harassment, please contact the Equity Office, your administrative head of unit, and/or your unit’s equity representative.

IKBSAS Unit 5 Equity Representative: Javad Tavakoli: javad.tavakoli@ubc.ca, 807-9535
UBC Okanagan Equity Advisor: ph. 250-807-9291; email equity.ubco@ubc.ca
Web: [http://equity.ok.ubc.ca/](http://equity.ok.ubc.ca/)