PHYA21H

Introduction to Physics IIA
(Physics for the Physical Sciences)

Prof. J. Lowman
julian.lowman@utoronto.ca

COURSE DESCRIPTION:

This course covers the main concepts required for an understanding of Longitudinal and Transverse Waves, Electricity and Magnetism and Special Relativity. It provides an introduction to these topics with particular emphasis on developing a mathematical framework for problem solving and analysis. However, many important breakthroughs in the understanding of physics have resulted from observation. Consequently, there will also an emphasis on empirical work as well theoretical investigation.

Physics is, arguably, the most fundamental branch of science, and in some ways it is the most simple. Physicists start with a big, often complicated, problem and they first simplify it as much as they possibly can. Once simplified they try to analyze the situation. They then gradually introduce more complications, one at a time, until they eventually end up with a model that can be applied to situations encountered in nature.

LECTURES:

Lecture slides will be posted online. They will be supplemented in class practicals by worked examples of problems. These may not be posted online. Lectures will be presented using Blackboard Collaborate. The course Quercus page includes a link to Blackboard.

All course lectures will be presented in synchronous sessions: Tuesdays from 4-6pm and Thursdays from 4-5pm. The lectures will be recorded, as presented, and will be available for viewing on demand through the Blackboard Collaborate link. However, the recording files will not be downloadable. In other words, you will only be able to view them using a browser with an active internet connection.

Lectures will often be structured on the assumption that you have read the textbook prior to the lecture. Please see the lecture/reading guide later in this document.

PRACTICALS:

Practicals start in Week 2 of the course (week of Jan. 18).

Students registered in the course are expected to enroll in one practical session. Practicals will vary in length each week between two and three hours. However, the start times will not vary and the sessions will be synchronous. Practicals are not recorded. Unlike the lectures, attendance at the practicals is expected. Moreover, you must attend the practical that you are enrolled in, you can and will be asked to leave practicals classes that you are not enrolled in.

FACILITATED STUDY GROUP (FSG) RESOURCES:

In general, the Teaching Assistants (TAs) that support this course are not available outside of Practical sessions. However, the course is supported by a Facilitated Study Group leader. This role is filled by a more experienced and knowledgeable underg

assignments in pdf format. This can be done by photographing the pages of hand-written solutions or by typing out the solutions. The easiest procedure for creating submission files appears to be photographing the pages with a mobile-phone camera and then concatenating the photos in a single file saved in pdf format. Assignments submitted late will receive a penalty of 50% after 5pm on the due date up until 5pm the next day. Assignments received after this will get a mark of zero. Thus it is frequently best practice to submit an incomplete assignment on time rather than continuing to work on a late assignment. Assignments will be marked by your practical leader (course TA).

PRACTICALS:

There will be ten (10) weeks of Practicals.

The Practicals will focus on problem-solving. Each week, the activities you are asked to do will be graded. Thus every week's Practical will generate grades. These marks will sum up to your 10% grade for Practical work.

PROBLEMS?

If you see a potential problem with your ability to participate in the course or the assessment methods you can e-mail me or contact the people at ACCESSAbility Services who can advise us both regarding accommodation.

LECTURE SCHEDULE

- **Week 1 – Wave Speed, Interference, Standing Waves (Chapter 16:1,2,5,7)**
- **Week 2 – Sound Waves, Intensity, Beats & Doppler E□ect (Chapter 17:1-7)**
- **Week 3 – Electric Charges, Forces and Fields (Chapter 21:1-3, 22:1-3)**
- **Week 4 – Continuous Distributions, PWeek uoek**

ACADEMIC INTEGRITY AND RESPECT FOR THE ACADEMIC ENDEAVOUR

Academic integrity is essential to the pursuit of learning and scholarship in a university, and to ensuring that a degree from the University of Toronto is a strong signal of each students individual academic achievement. As a result, the University treats cases of cheating and plagiarism very seriously. The University of Toronto's Code of Behaviour on Academic Matters:

http://www.governingcouncil.utoronto.ca/policies/behaveac.htm

outlines the behaviours that constitute academic dishonesty and the processes for addressing academic offences. Potential offences include, but are not limited to:

- **In papers and assignments: Using someone elses ideas or words without appropriate acknowledgement; submitting your own work in more than one course without the permission of the instructor; making up sources or facts; obtaining or providing unauthorized assistance on any assignment.**
- **On tests and exams: Using or possessing unauthorized aids; looking at someone elses answers during an exam or test; misrepresenting your identity.**
- **In academic work: Falsifying institutional documents or grades; falsifying or altering any**