

PHYA21H
Introduction to Physics IIA
(Physics for Physical Scientists)

Prof. J. Lowman
Office: SW506H
416-208-4880
lowman@utsc.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

ASSESSMENT:

	FINAL EXAM	:	40%
	MIDTERM	:	20%
	PRACTICAL QUIZZES	:	10% in total
OUT OF CLASS PROBLEM ASSIGNMENTS	:	:	10% in total
PRACTICAL GROUP WORK	:	:	10% in total
FORMAL LAB REPORTS	:	:	4% and 6%, 10% in total

MIDTERM AND EXAM:

Both the term test and final exam will draw from the lectures, practicals and textbook. This could include material presented in the lectures or tutorial material.

PROBLEMS?

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

TENTATIVE LECTURE SCHEDULE

- Week 1 { Standing Waves, Interference, Beats (Chapter 21)
- Week 2 { Electric Charges, Forces and Fields (Chapter 25, 26)
- Week 3 { Continuous Distributions, Capacitors and Motion with Fields (Chapter 26)
- Week 4 { Electrical Potential and Potential Energy, Multiple Charges (Chapter 28)
- Week 5 { Potential, Dielectrics, Resistance and Current (Chapters 29, 30)
- Week 6 { Circuit Laws (Chapter 31)
- Week 7 { Magnetism, Magnetic Fields and Forces (Chapter 32)
- READING WEEK
- Week 8 { Induction, Magnetic Flux, More Circuits (Chapters 33)
- Week 9 { Electromagnetic Waves, Wave Optics, Diffraction (Chapters 34, 22)
- Week 10 { Einstein's Postulate, Time Dilation, Length Contraction (Chapter 36)
- Week 11 { Spacetime, Lorentz Transformations (Chapter 36)
- Week 12 { Relativistic Momentum and Energy (Chapter 36)

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 student's 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/be>

•