



PHY131H1F Introduction to Physics I Class 1



- Welcome - please make yourself comfortable!
- We are **Jason Harlow** and **Andrew Meyertholen**. We will be sharing the teaching between now and December.
- Today will be an introduction and team lecture
- On Wednesday Dr. Harlow will take over for the first half of the semester, starting with Chapter 1!



Today's Outline

1. **Introduction** Who are we? What is physics?
2. **Run of the Course** Online Assignments, Practicals, Tests and Exam
3. **Physics Education Research** Why all the clickers, pre-class quizzes, practicals?
4. **Why are We in This Class?**
5. **Tips for Class Success**



Clickers...



- Beginning Wednesday, we will be asking in-class clicker questions every class.
- You will receive marks participation only; there is no penalty for getting the wrong answer.
- Clicker Participation is worth 2% of your course mark.
- Clickers cost \$42 at the bookstore new, and can be sold back for half-price after you are done. Many courses at U of T use these clickers.
- In this course you have the option of using an i>clicker, i>clicker+, or i>clicker2 remote, or using i>clicker GO, which enables you to vote via a web-enabled device like a laptop or smart phone.
- i>clicker GO is a free app for iPhone or Android, but an account costs \$10 per semester, non-refundable.

Who is teaching this course?



First half, now until late October:

- **Jason Harlow**

B.Sc. University of Toronto 1993
Ph.D. Pennsylvania State University 2000



Second half, October 28 to December 4:

- **Andrew Meyertholen**

My contact information



- **Jason Harlow**, teaching first half of course
- jharlow@physics.utoronto.ca
- **Office: MP121B**
- www.facebook.com/harlowphysics
- Twitter @jasonjbharlow
- Voice line (no texts): 416-946-4071
- Fall 2013 office hours: T2, R10 and F10, starting tomorrow.

Other important contacts



- **Dr. Pierre Savaria**, Course Coordinator
- phy131@physics.utoronto.ca
- Office: MP129E
- Voice line: 416-978-4135

- **Ms. April Seeley**, Course Administrator
- seeley@physics.utoronto.ca
- Office: MP129
- Voice line: 416-946-0531
- Office hours: Monday, Tuesday, Thursday, Friday 9:30am to 5:00pm, and Wednesdays from 9:30am to 4:30pm

What is Physics?

- **"Physics is like sex. Sure you can get some interesting results, but that's not why we do it."**
– Richard Feynman, 1918-1988



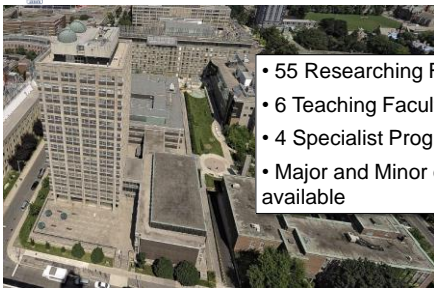
What is Physics?

- The main purpose of this course is to teach you the **methods** by which physicists have come to understand the laws of nature.
- By the time you finish this course, you will be able to recognize the evidence upon which our present knowledge of the universe is based.



Physics
UNIVERSITY OF TORONTO

<http://www.physics.utoronto.ca/>

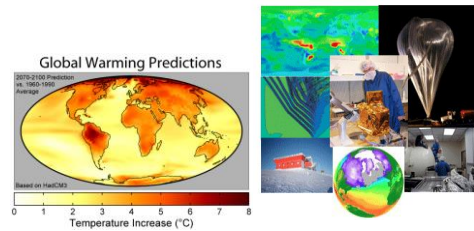


- 55 Researching Faculty
- 6 Teaching Faculty
- 4 Specialist Programs
- Major and Minor options available

Physics at U of T

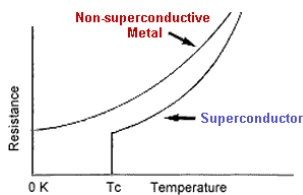


Atmospheric Physics
UNIVERSITY OF TORONTO



Superconductivity

- For some materials, the resistivity vanishes at some low temperature; they become Superconductive. Superconductors have the ability to conduct electrical current with no resistance(!!!), thus no loss of energy.



The Large Hadron Collider



[Image from <http://www.uctoday.com/17395/large-hadron-collider-wont-see-scenarios/>]



[Photo courtesy of BBC News, credited to Corn/Matthias Brink, from http://www.bbc.co.uk/1/health/science/2012/07/120704_lhc_hadron_collider_corn_1.shtml]




Higgs Boson
discovered July 4, 2012

[http://en.wikipedia.org/wiki/Higgs_boson]

"The results are an incontrovertible demonstration of the existence of a hitherto

The collage features several images: a factory interior (Industry), a microscope (Academic), particle tracks (Research), and a central 3D visualization of a data distribution. The words 'INDUSTRY', 'ACADEMIC', and 'RESEARCH' are placed near their respective images. The central 3D visualization shows a large, dark, irregular shape with a bright, multi-colored peak (yellow, orange, red, purple) rising from its center, suggesting a complex data set or simulation.



- Lots of fun!

- PHY131/132 is an acceptable pre-requisite for all second-year physics courses in case you decide to switch and pursue a POST in physics
- This course will help prepare you for the physics portion of the Medical College Admission Test (MCAT) in case you want to be a doctor some day
- Many health-science post-graduate programs require 2 semesters of lab-based physics



- Yes: After taking this course, you cannot take "breadth courses" in physics, such as PHY100 "Magic of Physics" or PHY205 "Physics of Everyday Life" - these courses are meant to be taken by non-science students.



- To be able to do PHY131H1 a student must have Grade 12 Calculus or Functions or their equivalent from another province or country.

- To be able to do PHY131H1 a student must do (or have done already) MAT135H1 or MAT137Y1 or MAT157Y1, or equivalent from another university or campus.

What can you expect of me?

- To try to teach well and explain physics clearly, at an appropriate level
- To treat you with courtesy, respect and kindness
- To be fair
- To be in my office at scheduled office hours
- To answer emails within 48 hours
- To begin class at 11:10am and end class at or slightly before noon

Online Homework

- You should purchase a **MasteringPhysics**® Student Access Kit, either as part of the textbook package or as a stand-alone
- Register with your name (same name on your student card) and UTORid
- Enrol in this course: **MPPHY131F13**
- **Problem Sets** (worth 9% of course mark) are quite long – make take between 1 and 3 hours per week

Tests and Exam

- **Test 1** is **Tuesday October 8, 8:00-9:30PM** in room(s) to be announced
- An alternate sitting will be scheduled just before the main sitting of the test for students who demonstrate a conflict with another academic activity at U of T – you must visit April in MP129
- **Test 1** is worth 15% of the course mark, and covers Chapters 1-5, and the Error Analysis Document
- **Test 2**, also worth 15%, is Tue. Nov. 19, 8:00PM
- The **Final Exam** is worth 40% of the course mark, covers the entire course, and will be held some time TBA between Dec.9-20

What do I expect of you?

- To read the assigned reading **before** coming to class (or at least watch the pre-class video)
- To keep up with the online homework
- To be seated and ready for class at 11:10
- To **not have more than one clicker with you** (bringing a friend's clicker to class is an academic offense called impersonation)
- To not make lots of noise during class or do stuff which distracts your neighbours
- To be patient with me when I make mistakes, and also to point out any mistakes I don't notice right away

Pre-Class Reading Quizzes

- In order to get the best out of our classes (which will include lots of clicker questions and discussion) you must read the chapters **before** coming to class
- If you hate reading, I have also posted pre-class videos, which go over the main points from each day's reading
- Beginning this Wednesday, there will be a short online multiple choice quiz on **MasteringPhysics**® due by 8:00am before class.
- The quiz will be based on your reading or watching of the pre-class video.
- The questions are not too tricky – if you've read the material, you should find them quite straightforward.
- These quizzes are worth 3% of your course mark

How to get more information

- The main way of keeping up with what's going on in the course is the web-site at:
<https://portal.utoronto.ca>
- The Course Information page on the portal page for this course has all the rules for the course – **PLEASE READ IT!**
- Also, we will email you from time to time at your utoronto.ca email address
- The above forms of electronic communication are mandatory – please use them!