

PHYS 1001: Foundations of Physics 1: Fall 2011

Professor:

Alain Bellerive

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520-2600x7537

Office Hours: Monday and Wednesday at 10:00am, or by appointment.

Lectures:

Tuesday and Thursday 8:30am - 10:00am

Room: Tory 202

Prerequisites: Grade 12 Physics, Grade 12 Mathematics (Advanced Functions and Introductory Calculus), or equivalent.

Corequisites: MATH 1004 or MATH 1002.

Marks Distribution:

Laboratory: 20%

Tutorials: 15%

Assignments: 15%

Midterm Examinations: 20% (2 × 1.0 hour)

Final Examination: 30% (3.0 hours)

- There will be weekly assignments given out. They are due in class one week after their distribution. Late assignments will not be accepted without an acceptable reason such as illness. You are encouraged to discuss the problem assignments with other students in this course. However, the work you turn in must be your own. Figuring out the assignments is the best way to learn the material.
- There will be regular assigned reading from the text. This particular text contains many good worked examples, only some of which will be discussed in detail in class.
- There will be weekly tutorial and laboratory sessions. There will be assigned problems for the tutorials, on which the class may work collaboratively. There will then be one problem set in the last half of the tutorial, to be completed individually and handed in for grading. Information and a schedule of the laboratories and tutorials will be distributed at your first laboratory.

- The midterm exams will be 1 hour long: October 5 (class) and October 24 or 27 (tutorial).
- The final exam will be 3 hours long (location and date TBA).
- The exact format of the exams will be discussed well in advance. Appendix IV of the book will be provided for the exams.
- Students who miss the final examination, may not be eligible for a deferred examination if they have not achieved a passing grade on the term work component of the course.
- For an outline of departmental and university policies governing academic behaviour see:
http://www.physics.carleton.ca/undergrad/academic_policy.html

Web:

All the info for the course at: <http://www.physics.carleton.ca/~alainb/teaching/Phys1001>

Text:

Physics For Scientists and Engineers Volume 1-2 (Ch. 1-40) [3rd Edition]
P. Fishbane, S. Gasiorowicz, and S. Thornton - Pearson (2005)

Course Content:

Material from Chapters 1 through 10, Chapter 12 and 13, and Chapters 17 through 20 of the text. Emphasis will be given to Chapters 1-10; an overview of the mathematical tools will take place during the first week of class. The course content is defined by the lectures as well as the text.

- CH 1. Tooling Up
- CH 2. Straight Line Motion
- CH 3. Motion In Two And Three Dimensions
- CH 4. Newton's Laws
- CH 5. Application Of Newton's Laws
- CH 6. Work And Kinetic Energy
- CH 7. Potential Energy And Conservation Of Energy
- CH 8. Linear Momentum, Collisions, And The Center Of Mass
- CH 9. Rotation Of Rigid Bodies
- CH 10. Angular Momentum And Torque
- CH 12. Gravitation
- CH 13. Oscillatory Motion
- CH 17. Temperature And Ideal Gases
- CH 18. Heat Flow And The First Law of Thermodynamics
- CH 19. The Molecular Basis Of Thermal Physics
- CH 20. The Second Law of Thermodynamics