

PHYS-2010-003: General Physics I

Syllabus — Fall 2010

Course ID: PHYS-2010-003
Lecture Times: M W F 11:30 a.m. – 12:25 p.m.
Lecture Location: Brown Hall, Room 370
Lecturer: Dr. Donald Luttermoser
Office Hours: M 2:30 p.m. – 3:30 p.m. (280 Brown Hall, 439-7064)
 R 3:00 p.m. – 4:00 p.m. (280 Brown Hall)
Textbook: *College Physics, 8th Edition* by Serway & Vuille

Course Outline

<u>Days</u>	<u>Topics</u>	<u>Readings</u>
August 30, 1, 3	I. Introduction & II. Math Techniques	Chapter 1
September 3	Math Tech Quiz	Your Background
September 6	Labor Day – No Class	
September 8, 10	III. Motion in 1 Dimension	Chapter 2
September 13, 15, 17	IV. Motion in 2 Dimensions	Chapter 3
September 20, 22, 24	V. Newton's Laws of Motion	Chapter 4
September 27	Exam 1 (Sections I-V)	Chapters 1-4
September 29, 1	VI. Work & Energy	Chapter 5
October 4, 6, 8	VII. Linear Momentum & Collisions	Chapter 6
October 11, 13, 15	VIII. Circular Motion & IX. Gravity	Chapter 7
October 18	Fall Break – No Class	
October 20, 22	IX. Gravity (continued)	Chapter 7
October 25	Exam 2 (Sections VI-IX)	Chapters 5-7
October 27, 29	X. Rotational Equilibrium & Rotational Dynamics	Chapter 8
November 1, 3, 5	XI. Solids & Fluids	Chapter 9
November 8, 10, 12	XII. Thermal Physics	Chapters 10 [†] , 11
November 15	Exam 3 (Sections X-XII)	Chapters 8-11 [†]
November 17, 19	XIII. Gas Laws	Class Notes
November 22, 24	XIII. Kinetic Theory	Chapter 10.4, 10.5
November 26	Thanksgiving Break – No Class	
November 29, 1, 3	XIV. Thermodynamics	Chapter 12
December 6, 8, 10	XIV. Thermodynamics & Course Review	Chapter 12
December 13*	Final (3:50 p.m. – 5:50 p.m.)	Chapters 1-12

† — The material from Chapter 10 on Exam 3 will only cover sections 10.1, 10.2, and 10.3. Sections 10.4 and 10.5 material will be on the Final Exam.

* — Note that the final falls on **Monday, December 13th** at the time listed above. The final covers the entire course.

For other university information, please consult the ETSU supplemental syllabus attachment at:

<http://www.etsu.edu/reg/academics/syllabus.aspx>

The web page for this course can be found at:

<http://www.etsu.edu/physics/lutter/courses/phys2010/index.htm>

Overview

General Physics I is the first semester of a one-year course in physics; topics will include mechanics, heat, thermodynamics, and the properties of solids, liquids, and gases. The main goals of this course are to demonstrate to you how the Universe works and to teach you scientific methodology. **General Physics I is a problem-solving course, that is, the measure of a student's progress is demonstrated by the ability to solve problems using algebra and trigonometry, and not just to quote facts, laws and formulas.** Your homework will be designed to help you develop these skills and the exams will test you on them. **It is assumed that you have a reasonable working knowledge of algebra and trigonometry at a high school level.** There will be a quiz that will test your mathematics skills on September 3rd. *Should you not do well on this quiz, you should reconsider whether you should be taking this course.* Doing physics means doing story problems in mathematics! **You are expected to have (and know how to use) a good *scientific* calculator — especially for exams.** The Department does not have calculators to loan, and *sharing* of calculators on exams is **NOT** permitted. The book store carries such calculators.

Exams, Quiz, & Homework

There will be 1 quiz and 3 exams throughout the semester, plus a comprehensive final on the dates listed on the first page of this syllabus. Each will cover material prior to the test and be taken during class time (except the final) as shown in the table below. Note that the quiz score will not be included in your final course grade. Each exam will be worth 20% and the final worth 30% of your course grade. Note that all physical constants and formulae that you may require will be supplied on the exams and quiz. Otherwise, the exams are closed book and notes – you will not be allowed to consult any external written materials. An exception to this rule concerns the final. You will be allowed to bring one 8.5x11" sheet of paper to the final with anything you wish to write on it (“examples” might be a better idea than a grocery list).

Exam	Note Sections	Textbook Chapters	Date Given
Quiz	II	1 & Appendix A	Friday, September 3, 2010
1	I, II, III, IV, V	1, 2, 3, 4	Monday, September 27, 2010
2	VI, VII, VIII, IX	5, 6, 7	Monday, October 25, 2010
3	X, XI, XII	8, 9, 10, 11	Monday, November 15, 2010
Final	$\frac{1}{2}$ (XIII, XIV) + $\frac{1}{2}$ (I-XII)	$\frac{1}{2}$ (10, 12) + $\frac{1}{2}$ (1-11)	Monday, December 13, 2010

Sickness and Make-Up Exams: If you are sick, do not come to school! If this occurs on exam day, you will be allowed to take a *make-up exam*. Note, however, that unlike the “in-class” exams which contain a combination of multiple-choice questions and written problems, the “make-up” exams will be problems only. Don’t let this scare you off, many people do worse on the multiple-choice questions than on the problems. **Stay at home if you are sick!!!**

There will be 4 homework sets assigned throughout the semester composed of two sections of questions. The first section will be questions generated by the CAPA software package and accessed through the Department’s CAPA web site (see <http://capa.etsu.edu/>). You will be given further information about CAPA during lecture. These CAPA questions must be accessed through a web browser and will be graded. If you don’t have access to the web at home, you can use any of the computer labs on campus including the one in Brown Hall room 264. The second section of problems will not be graded and will have solutions posted on the course web page. Try to do these problems by yourself before retrieving the solutions from the web page. Doing both sections of questions will be a big help in studying for the exams and the CAPA problems will be used in calculating your final grade for the course.

Extra Credit

Each exam will have a 5 point extra credit question on it (the final will have two 5 point questions). Roll will be taken occasionally during class. Regular attendance will be useful in obtaining a good grade in this class. Other than the extra credit problems on the exams, **no extra credit projects will be allowed, so don’t even ask.**

Tutoring and Supplemental Help

Many students find **General Physics I & II** very challenging and have a difficult time understanding the principles of physics and solving physics problems. Mainly, this is due to a lack of training of logical thought skills at secondary school. Due to this, there are a variety of ways to get additional help with this course.

1. The Center for Academic Achievement offered by ETSU (see <http://www.etsu.edu/scs/uts/default.asp> on the web).
2. Assistance from the Professor during office hours in Brown Hall 280 (see Page 1 of this syllabus).
3. Review sessions prior to each exam (date and times to be determined during lecture the week prior to the exam).

4. Tutors for Hire can be obtained by the individual student taking *General Physics*. These tutors are typically physics majors who charge a fee for their services. Most of the physics majors can be found in Room 260 of Brown Hall.

With these supplemental instruction options, students can gain valuable help with this difficult course.

Grading

The format of the exams will be similar to those sample exams on the course web page. Many of the “full-length” problems you will get on the exams will be modified versions of the example problems in the notes and textbook, and the supplemental and CAPA homework problems. From these sources, you will have access to anywhere from 10 to 25 examples for each section of the notes. This will be more than sufficient to fill your need for studying for the exams. The grading system will be based by the following formula:

$$\text{Final Grade} = \left[0.20 * \left(\frac{\text{Exam 1}}{40} \right) + 0.20 * \left(\frac{\text{Exam 2}}{40} \right) + 0.20 * \left(\frac{\text{Exam 3}}{40} \right) + 0.30 * \left(\frac{\text{Final}}{80} \right) + 0.10 * \left(\frac{\text{Homework}}{\text{Homework Total}} \right) \right] * 100\%$$

The final grades will be based on the following scale:

B+ = 86–87.9%	A = 90% or better	A– = 88–89.9%
C+ = 70–72.9%	B = 76–85.9%	B– = 73–75.9%
D+ = 56–58.9%	C = 62–69.9%	C– = 59–61.9%
	D = 50–55.9%	
	F = Less than 50%	

Note that a failing grade also will be given if the student has engaged in any form of academic dishonesty. Finally, you should not talk to your classmates during the class — that is no student will be allowed to disrupt the class. The only verbal communication allowed is asking the professor a question. **IMPORTANT NOTE: This also includes the ringing of cell phones! Turn your cell phones off before coming into class!** If you are caught disrupting the class once, you will be warned. A second time will result in you being dismissed from the current lecture. A third and final time will result in you failing the course. Be courteous to your neighbors, they are paying hard earned money to take this course.