

# EASTERN NAZARENE COLLEGE

## PY 201 General Physics I

Fall 2006

**INSTRUCTOR:** John U. Free, [john.u.free@enc.edu](mailto:john.u.free@enc.edu)

**HOMEWORK SESSION LEADERS:** Joe Cox, [joseph.j.cox@enc.edu](mailto:joseph.j.cox@enc.edu),  
Paul Aliotta, [cannonballpaul@gmail.com](mailto:cannonballpaul@gmail.com)

**HOMEWORK GRADERS:** WebAssign, Paul Aliotta, and Joe Cox

**LABORATORY ASSISTANTS:** Paul Aliotta

**Tell me and I'll forget;  
show me and I may remember;  
involve me and I will understand.  
- CHINESE PROVERB -**

### OVERVIEW:

Physics is the study of the physical universe from both the microscopic and macroscopic vantage point. It ultimately seeks an explanation of the nature of matter and its interactions. Like many other disciplines, physics is composed of interacting and overlapping topics (e.g., optics, thermodynamics, and mechanics). This is a yearlong course designed as a survey of all areas of physics and will seek to expose a common thread running throughout apparently disparate topics.

### OBJECTIVES:

- \* to help students develop an understanding of the physical universe at it's most fundamental level
- \* to explore a wide range of physics applications in science, technology, and everyday life
- \* to see "grand connections" among the various topics in physics
- \* to develop students' analytical and quantitative skills as applied to problems in science and engineering
- \* to help students gain skills in the physical laboratory

### REQUIRED TEXT(S):

Physics for Scientists and Engineers, Randall Knight, Pearson Addison Wesley, 1<sup>st</sup> ed., 2005.

Student Workbook, Randall Knight, Pearson Addison Wesley, 1<sup>st</sup> edition, 2005.

Laboratory Study Guide - available in the Physics Office, 162 Old Colony.

### SUPPLEMENTAL TEXT(S):

Is Your Math Ready for Physics, Walter Gleason, W C Brown Publishers, 1993.

### COURSE WEB PAGE

There is a course web page linked to my home page located at [enc.edu/~john.u.free](http://enc.edu/~john.u.free). Here you will find a link to the course web page under PY 201 General Physics I. You should find all the material needed for the course: syllabus, exam study guides, solution to practice problems, workbook solutions, old exams. I will also place the Power Point lectures on the web page.

## **ATTENDANCE:**

Regular attendance is expected. Laxity in this category will negatively affect the daily quiz/attendance component of your grade.

## **DAILY QUIZZES:**

Each class period we will start with a 5 to 10 minute quiz. The class quizzes are designed to help you prepare for class and self evaluate your understanding of the material. To prepare for the daily quizzes you should read the text section assigned on the daily schedule. We will use a system called PRS or Personal Response System that will allow you to take the quiz electronically. The **lowest three** quizzes will be dropped.

## **HOMEWORK:**

Homework is assigned for each class and can be found on the web at WebAssign ([www.webassign.com/](http://www.webassign.com/)). Since assignments are published well before their due date, there is **no excuse for late homework**. Assignments are due **the next class after they are assigned**. For example homework assigned on Monday is due on Wednesday. On exam days the homework is due the next class after the exam. All assigned homework will be submitted and graded by WebAssign.

There are times in the semester when this policy will be a hardship so there is a “grace period”. **Six times** during the semester you can turn in a class assignment **the next class day after it is due** without a penalty. **Homework will not be accepted after two class days. All extensions must be requested from WebAssign using the extension option.**

## **PRACTICE PROBLEMS:**

With each homework assignment you have three or four practice problems. These problems are similar to the homework problems but not graded. Working these problems will help you prepare for the homework and exam. You will find the solutions for the practice problems on the course web page.

## **EXAMS:**

There will be three (3) exams throughout the term. The exam will consist of two parts. The first part will be **conceptual** multiple choice questions and **conceptual** short answer questions. The second part will be **problems**. You will find the three Exam Study Guides on the course web page.

## **FINAL EXAM:**

The final exam is a multiple choice exam and scheduled by the registrar. The exam is cumulative and covers material studied throughout the semester.

## **PROBLEM SOLVING SESSIONS:**

You are encouraged to attend the Problem Solving Sessions each week. The sessions are Sunday, Tuesday, and Thursday evenings. Perfect attendance at these sessions will help me determine “border line blues” in your grade. The sessions will be totally devoted to problem solving. *To get maximal benefit from these sessions you should attempt to solve the homework problems before coming to the sessions.* In fact, the instructor will not help you unless you have attempted the problem before the session.

**LABORATORY:**

PY 201L General Physics Laboratory must be taken concurrently. The purpose of the physics laboratory is to allow the student to examine first-hand the concepts presented in class and to reinforce the empirical nature of physics. Labs are held on Thursday (1:30-4:30) and Friday (2:00-5:00). Each section will have a lab assistant who will have control over the operation and grading of the lab. See the preface of the laboratory manual for more detail.

**GRADING:**

Your grade will be computed as follows:

<i>Class grade</i>			
exams	- 35%	homework	- 30%
quizzes/attendance	- 20%	final	- 15%
<i>Lab grade</i>			
prelab or postlab quiz	- 20%	laboratory	- 80%

**OFFICE HOURS:**

Office hours this term will be Monday and Wednesday 1:30-3:00; Tuesday and Thursday by appointment. Feel free to stop in anytime I am in the office (Shrader 13) or make an appointment with me, john.u.free@enc.enc or the department secretary.

**LABORATORY SCHEDULE:**

Nov. 31-Sept. 1	Introduction to Windows, Excel, Maple, and Data Studio
Sept. 7-8	Motion: Displacement, Velocity, and Acceleration
Sept. 14-15	Constant Acceleration: Free Fall
Sept. 21-22	Non-uniform Motion and Newton's Laws
Sept. 28-29	Projectile Motion
Oct. 5-6	Newton's Second Law and Friction
Oct. 12-13	Work and Energy
Oct. 19-20	Collisions in One Dimension
Oct. 26-27	Rotational Dynamics
Nov. 2-3	Hook's Law and the Harmonic Oscillator
Nov. 9-10	Standing Waves in an Air Column
Nov. 16-17	Ideal Gas Laws
Nov. 30-Dec. 1	<i>make-up labs this week</i>