

PHYSICS 1405 - Conceptual Physics I

Synonym# 42410

Fall, 2009

CREDITS: (4-3-3)

INSTRUCTOR: Paul Williams, Ph.D.

COURSE DESCRIPTION: Conceptual survey of topics in physics, including the fundamentals of motion, forces, energy and momentum. Intended for liberal arts and other non-science majors, but science majors with weak physics background may wish to use this as an introduction to physics principles.

PREREQUISITES: none

TEXT: *Conceptual Physics*, 10th ed., by Paul Hewitt

OTHER: Calculator

METHODOLOGY: Lecture/Lab

LECTURE: MW 12:00-1:15 PM RVS 2213

LAB: MW 1:25 -2:40 PM RVS 2213

OFFICE LOCATION: NRG 2216 (RVS 2247)

PHONE NUMBER: 223-4824

E-MAIL ADDRESS: pwill@austincc.edu

Website: www.austincc.edu/nrgpsc

OFFICE HOURS:

The following office hours are held in room 2216 at NRG

TTh 8:30 am – 9:00 am

TTh 1:30 pm – 2:30 pm

The following office hours are held at RVS in a room 2247

MW 10:45 am – 11:45 am

By Appointment Only – Please contact me 24 hours in advance

MW 2:40 pm – 3:55 pm at RVS TBA

TTh 2:30 pm – 3:45 pm at NRG 2216

If you cannot make any of these office hours then we can make an appointment.

COURSE RATIONALE: Physics course intended for liberal arts majors who want an understanding of how physics can explain everyday life physical phenomena and how physics relates to their everyday lives.

COURSE OBJECTIVES:

I. Lecture

1. To develop the concepts and language of physics.
2. To make students aware of how physics related to their everyday lives and their world.
3. To develop critical thinking.

II. Laboratory

1. To strengthen the concepts and ideas introduced in class and show the link between theory and experiment.
2. To introduce students to experimental techniques.
3. To develop critical thinking.

EXPECTATIONS AND ROLES:

Instructor: It is the instructor's role to create a learning environment. This includes but is not limited to presenting material in lecture and laboratory formats, providing group activities, assigning homework, lab write-ups, and giving tests. Also the instructor's role is to provide feedback on student work and tests.

Student: Learning is the student's responsibility – not the instructors. You are expected to attend and actively participate in class regularly, complete your assignments on time, actively participate in and complete your lab assignments on time, be prepared for tests at the designated time, and seek and obtain any help that you need. In general, what you receive from any course and the grade you obtain will reflect the effort you put into the course.

GRADING SYSTEM:

You grade will be determined as follows:

Tests	40%
Final	20%
Homework	10%
Class Participation	5%
Laboratory	25%

Based on the following scale:

A	90-100
B	80-89
C	70-79
D	60-69
F	0-59

Tests – Four one-hour tests will be given approximately every 3-4 weeks as shown in the course calendar. The tests will be closed notes and books unless otherwise indicated. ***No make-up exams will be given.*** However, a student may replace their lowest test grade with their grade on the final exam.

Homework Grade – Homework will be spot-checked for completeness and correctness. The primary form of feedback I give on homework assignments is answering questions in class or during office hours

Class Participation - Your participation grade will be determined by the percentage of class participation activities completed. Class participation activities will include but are not limited to clicker responses, in-class worksheets and interactive lecture demonstrations. *Class participation cannot be made up.*

Lab Grade – Your lab grade will consist of the average of your laboratory assignments.

COURSE POLICIES:

a. Attendance Policy: Attendance is required and I expect you to attend class regularly. It is my experience that a typical student will drop a letter grade for each three to four absences. Each student must complete every lab.

b. Withdrawals and Incompletes: The instructor makes no commitment to withdraw a student who stops attending. If you decide to not complete the class at this time, you must withdraw yourself by the drop deadline November 24, 2008. Failure to do so will result in a failing grade which will not be changed. Incompletes are given only exceptional circumstances and only to students who have completed the preponderance of the course work.

c. Scholastic Dishonesty: Scholastic Dishonesty: Acts prohibited by the college for which discipline may be administered include scholastic dishonesty, including but not limited to cheating on an exam or quiz, plagiarizing, and unauthorized collaboration with another in preparing outside work. Academic work submitted by students shall be the result of their thought, research or self-expression. Academic work is defined as, but not limited to tests, quizzes, whether taken electronically or on paper; projects, either individual or group; classroom presentations, and homework.

Adding your name to a group lab that you did not complete in its entirety nor that you contributed to in a significant way will be viewed as scholastic dishonesty and will result in a grade of 0 for that lab activity. Also using a classroom response clicker assigned to another student will viewed as scholastic dishonesty and will result in grade of 0 for the class period.

d. Academic Freedom: Students are free to disagree with instructors on matters of opinion or personal philosophy, and will incur no penalty from doing so. However, instructors will judge student work based upon its relation to the current state of mainstream scientific fact and theory students are allowed to voice opinions, concerns, complaints and suggestions to the instructor. However, it is up to the instructor to decide how to use the student's comments to meet the class's best interests.

e. Student Discipline: Matters of student discipline will be adjudicated by the instructor on a case-by-case basis, in conjunction with the Task Force Leader or Dean. Students may consult with the Office of Student Services or the Associate Dean at their campus on these matters.

f. Office for Student with Disabilities: Each ACC campus offers support services for students with documented physical or psychological disabilities. Students with disabilities must request reasonable accommodations through the Office for Students with Disabilities on the campus where they expect to take the majority of their classes.

Students are encouraged to do submit their request at least three weeks before the start of the semester.

g. Help: If you need help, get it. I hold office hours to help students and you should view me as a primary as a primary source of aid. Also, free walk-in tutoring is provided by the Learning Labs, and I highly recommend this service. You are encouraged to work on homework assignments with classmates. However, regardless of the source of help you receive you are responsible for your own work. If you copy someone else's homework without doing it yourself, you will not understand the material and despite having a good homework grade will not do well in the course.

h. Problems: If some problem arises causing you to miss an assignment, please see me in advance if at all possible and I will try to make accommodations. Incompletes are not given except under extreme circumstances.

i. Time: You should expect to spend 2 hours outside of class for each hour in class. It is expected that you will keep up with the reading assignments and you should expect to read 5-10 pages per night in the text. I believe whole-heartedly in homework. Physics requires a different type of thinking than other classes and this though process must be developed through practice. Homework will be due approximately every week as shown in the class schedule.

j. Homework Grading: Homework will be spot checked with each assignment earning a grade from 0 – 10 depending on effort, correctness, and completeness.

k. Assignment Due Dates: Homework assignments are due on my desk without my asking for them at the end of the class period indicated in the course calendar or as directed in class. Lab assignments are due at the end of thee period the assignment is completed unless otherwise directed.

l. Organization: Please keep your assignments so that any possible errors in my grading records can be rectified. It is a good idea to keep your homework in a loose leaf binder for reference.

m. Late Homework: Homework is an integral part of this course. You need to work on assignments regularly and turn them in a timely fashion. Late homework will be given 5 points for completeness but will not be graded. Also no assignments will be accepted after Monday of the last week of class.

n. Laboratory: A major component of this course is the laboratory. You will perform laboratory exercises typically twice per week. Each will require a brief write-up which will be due at the end of that class period unless otherwise directed.

o. Laboratory Make-up – You may make up a total of three missed laboratory periods. To make-up a laboratory obtain a copy of the missed activity from the instructor and then schedule a time to make up the lab with the laboratory technician. Typically make-ups

are held on Fridays. There may be other times during the semester that a lab can be made up.

p. Cell Phone – As a courtesy to your instructor and your classmates, please make sure that your cell phone is turned completely off before class. If you are expecting an urgent phone call, then please place the phone in a silent mode. Texting during class time is distracting to yourself, your fellow students, and the instructor. You may not text during class.

q. Inappropriate Use of Computers – We will frequently make use of computers in this class. The computers should only be used for the designated assignment, and assignments may be penalized at the discretion of the instructor for inappropriate use.

Tentative Course Outline / Calendar:

In the calendar below the date is the Monday of that week. For each week, the first row gives approximately the sections of the text to be covered and second row gives the lab activity for that day.

Week Date of Monday	Monday	Assignment Due	Wednesday	Assignment Due
1 8/24	Introduction to Course Ch. 1		Ch. 2	
	Safety Orientation, Introduction to Inertia		Galileo's Hot Wheels	
2 8/31	Ch. 2, Ch. 11		Ch. 12	HW #1
	The Equilibrium Rule		Making a Spring Balance	
3 9/7	Labor Day Holiday		Ch. 3 Introduction to Motion	HW #2
			Motion Diagrams	
4 9/14	Ch. 3 Reaction time Activity		Ch. 4	HW #3
	Kinesthetic Kinematics		Test #1 Review	
5 9/21	Test #1 Chs. 1-3,11,12		Ch. 5	
	Newton's 2 nd Law		Newton's 3 rd law	
6 9/28	Ch. 6	HW #4	Ch. 6	
	Impulse and Momentum		Conservation of Momentum	

7 10/5	Ch. 7	HW #5	Ch. 7	
	Work, Energy, and Power		Conservation of Energy and Hot Wheels Energy Project	
8 10/12	Ch. 8	HW #6	Ch. 8	
	Introduction to Rotational Motion		Conservation of Angular Momentum	
9 10/19	Ch. 9	HW #7	Ch. 10	
	Apparent Weight		Test #2 Review	
10 10/26	Test #2 Chs. 4 - 8		Ch. 13	HW #8
	Projectile Motion		Hydrostatic Pressure	
11 11/2	Ch. 13		Ch. 14	
	Archimedes' Principle		Boyle's Law	
12 11/9	Ch. 15	HW #9	Ch. 16	
	Bernoulli's Principle		Test #3 Review	
13 11/16	Test #3 Chs. 9,10,13,14	HW #10	Ch. 17,18	
	Introduction to Heat		Heat Transfer	
14 11/23	Ch. 19	HW #11	Ch. 20	
	Introduction to Waves		Standing Waves	
15 11/30	Ch. 21		Test #4 Chs. 15 - 20	HW #12
	Test #4 Review		Waves and Sound	
16 12/7	Final Review		Final Exam	