PH 201E College Physics I (Spring, 2013)

Textbook: *Physics* by J. Cutnell and K. Johnson; 8th Edition. Coverage of Ch 1-7, 9-14, 16-17.

Course Prerequisite: Completion (with a grade of "C" or better) of one of the following: PH100, MA106, MA107, MA125.

Lecture: MWF 12:20-1:10 pm, Campbell Hall 301.
Co-requisite: PH201L laboratory - 1 cr. hour, and PH201R recitation section is mandatory. Failure to enroll in them is grounds for administrative class withdrawal.

Professor: Xujing Wang, Associate Professor, Department of Physics
xujingw@uab.edu
934-8186
Office: CH303
Office hours: W: 10-11, F: 11-12 (expect the following days: Jan 18, Feb 15, Mar 15, Apr 19)
F: 1:20-2:20 for Jan 18, Feb 15, Mar 15, Apr 19

Recitation Sections (instructor TBA):
M: 201R-E3, 11:15 am-12:05 pm (Xujing Wang)
F: 201R-Q3, 11:15 am-12:05 pm

Laboratory Section 201L Instructor: Todd Devore

Homework on WebAssign: class key **uab 4400 4531.**
Must register within the first week of class. Communicate with instructor regarding any issues.

Grading:

Quizzes (3)	37.5% (75 pts)
Homework	15% (30 pts)
Laboratory	15% (30 pts)
Recitation	10% (20 pts)
Final Exam	22.5% (45 points)
TOTAL: 100% (200 points)	

Grade	
A	89.5+
B	79.5+
C	69.5+
D	59.5+
F	otherwise

Tentative Schedule (subject to in-class change)

DATE	wk	TOPICS	Recitation	Lab
Jan 9, 11	1	CH 1 (Introduction and Math Concepts) CH 2 (1D motion)	No recitation	No lab
Jan 14, 26, 18	2	CH2, CH 3 (Kinematics in 2D)	1. group work: secret sub	1. Experimentation and measurement
Jan 21 (MLK, no class), 23, 25	3	CH 3 (Kinematics in Two Dimensions)		2. Motion
Jan 28, 30, Feb, 1	4	review 1-3	Problem solving	3. Changing motion
Feb. 4	***4***	***Quiz 1* CH1-3**		
			Problem solving	
Feb.6, 8	5	CH4 (Forces/Newton's Laws of Motion)	2. group work: bank robbery/3 tragic accident	4. Force and motion
Feb 11, 13, 15	6	CH4, CH5 (Dynamics of Uniform Circular Motion),	4. group work: warehouse	5. Combining forces
Feb 18, 20, 22	7	CH6 (Work and Energy) CH 7 (Impulse and Momentum)	Problem solving	6. Force, mass, acceleration/Gravitati onal force
Feb 25, 27	8	CH7, Review for 4-7	5. group work: carnival ride	7. Passive forces and Newton's laws
Mar 1	***8***	***Quiz 2, CH 4-7***		
Mar 4,6,8	9		7. group work: lost in space 10. group work: the mixer	8. Collision
Mar 11, 13, 15	10	CH 9.1-9.3 (Torque and Bodies in Equilibrium) CH 10 (Simple Harmonic Motion),	Problem solving	9. Conservation of momentum
Mar 18-22	11	Spring break		
Mar 25,27,29	12	CH10, CH 11 (Fluids),	Problem solving: torque	10. Work and energy
Apr 1, 3,	13	CH11,	10 mixer	11. conservation of energy
Apr 5	***13***	***Quiz 3, CH7-11***		
Apr. 8. 10, 12	14	CH 12 (Temperature and Heat), CH 13 (The Transfer of Heat)	11. group work: barrel across the river Problem solving	Lab finals
Apr. 15, 17, 19	15	CH 13 (The Transfer of Heat) CH14.4 (Diffusion), CH 16 (Waves and Sound)	12. group work: pasta pot	Make up
Apr 22, 24, 26	16	CH 16 (Waves and Sound)CH17 (Interference Phenomena)	Problem solving	
Apr 29, May 1	17	Review for Final, problem solving		
May 2-3		Make up day		
Wednesday, May 8 10:45 AM – 1:15 PM		***Final Exam***		

Jan 16 Last Day to Drop/Add (Without paying full Tuition & Fees)

Mar 22 Early Alert Ends

March 28 **Last day to withdraw** from course with a “W” is

May 8 10:45 AM – 1:15 PM, final exam

Course Objective and Description:
In this first term of non-calculus-based Physics, the goal is to teach the very basic physics principles of the common phenomena and processes that we encounter almost every day. These include linear and planar motion, force and Newton's Laws, energy, momentum, torque, bodies in equilibrium, temperature and heat, heat transfer, diffusion, fluids, ideal gas, waves, and sound. Through course, the students will acquire a conceptual understanding of the basic concepts and laws, the way of thinking in physics, learn how to formulate the problem and the quantitative approach to solve it. More specifically, learning objectives include:

- the utilization of the problem solving skills developed in this course to physics and other fields through the application of algebra and trigonometry,
- Ability to interpret data, apply fundamental physical concepts, reason quantitatively and use mathematical analysis skills to effectively solve problems. You should be able to:
    1. Read a description of the problem and translate nonscientific prose into the language of physics, identify key quantities that point to a solution; work with units of measurement, translate verbal descriptions into mathematical form, and/or evaluate the reasonableness of quantitative assertions;
    2. interpret and construct tables, graphs, and schematic representations of relationships among objects and concepts to assist in analyzing the problem:
    3. determine a relationship between the given physical quantities and the ones to be found;
    4. Carry out mathematical operations including arithmetic and algebra to arrive at a solution.
- Demonstrate (in the associated laboratory) the ability to collect, evaluate and communicate scientific information.
- Communicate quantitative information using numbers and words appropriate to the audience.

Related UAB core learning outcomes:

Demonstrate the ability to collect and evaluate information within the context of the scientific method and to use this ability to further one's understanding of the natural world. Demonstrate the ability to apply mathematical skills and quantitative reasoning to solve problems and interpret information. *Physics is concerned with development of thinking, analysis and problem-solving skills, not memorization of facts.*

Tests and Exams:
Three Quizzes, will be given during the class, with a cumulative final exam. A calculator *without physics, engineering, or information-storage modules* may be used. The intent of the exams is to test your understanding of physics principles and to test your ability to apply these principles to practice, credit will be awarded only if the right answer is obtained for the right reason, *with the correct work shown leading up to the answer,* **therefore steps are important**. Partial credit awarded for correct steps and techniques even if the answer is wrong.

Homework:
Homework is electronically processed via an internet website: http://www.webassign.net/uab/login.html. ***However, the first time you log in you must log into https://www.webassign.net/login.html and follow the directions.*** It is important to enter this web page ASAP, successfully authenticate using your BlazerID, and after that you will be automatically added to the roster.

Homework is usually available mid week, due the Sunday midnight of the following week.

Homework due is strictly enforced by a computer. NO LATE HOMEWORK ACCEPTED. You are strongly advised to start homework as soon as a problem set is given. It is absolutely critical to work these problems yourselves when they are assigned, since this will help to lock in understanding of the physical principles learned from class and the textbook and develop problem-solving skills, which will be necessary for any type of success on the exams. Do not fall into the trap of just reading over or memorizing homework solutions, this will generally be of little or no use for solving the exam problems. Students who do not have internet access can use computers in Stern Library and Physics Labs (Campbell Hall 4th floor). Day schedule when 4th floor labs are open for use by PH202 students will be set up by Dr. Todd Devore (CH468A, phone 934-4295, E-mail: devore@uab.edu).

Recitations:
The purpose of the recitation is for you to develop problem solving skills in class. You will typically be working in small groups to solve problem(s) based on lecture material. In some class sessions, each group will turn in a solution that will be graded. It is your responsibility to contribute to the group effort in working together to find a solution. Your name must be included on the paper in order to get credit.

Laboratory:
The UAB Department of Physics will no longer allow students to use grades made in a lab section from a previous semester when retaking any of the courses in the PH201-202 or PH221-222 course sequence. Assignments, protocol, due dates, and grading of labs will be discussed in the 1st lab meeting. You are required to get the lab manual materials (available in the campus bookstore*) before the 1st day of lab*.

Blackboard Learn Online Resource:
Students gain supplementary information, learning resources, instructor postings, and additional homework problems using Blackboard Learn, which is a campus-wide learning management system for students and faculty. Login to https://cms.blazernet.uab.edu/cgi-bin/bb9login.

Excuses and Make ups
Note: no make-up quizzes will be given except for the most extraordinary circumstances those being: (1) documented serious illness- only if an original signed statement from a physician (copies not acceptable) is provided listing start and end of excused period (but NO confidential

medical information or medical “worksheets”) and physician’s contact phone number; (2) death in the immediate family- provide an obituary printed in a newspaper or a printed funeral program that includes your name as a family member; (3) other unavoidable UAB-recognized activity (official required participation in a UAB extracurricular activity, military duty, or jury duty). In all three cases, it is necessary to provide notification (via *both* E-Mail notification to xujingw@uab.edu *and* a voice message to 934-8186) to the instructor before the missed quiz to qualify for a make-up quiz. In case (2) and (3), prior instructor approval is required.

Policy Regarding Appropriate Use of Technology in the Classroom:
The use of any personal computational or communications devices, personal computers, or IPAD’s in the classroom is prohibited without the explicit expressed approval of the instructor who deems it necessary for student learning. If the student uses IPAD’s or laptops for educational purposes, please alert the instructor and get permission at the beginning of class (although this permission may be revoked if the laptops are used for non-approved purposes). **Please note that working on (and especially discussing) the on-line homework during lecture is not allowed, as this is disruptive to you and the other students.** No computers, IPADs, personal digital assistants, text pagers, cell phones, or calculators with special scientific or physics modules are permitted during exams under any circumstances. The use of such devices without permission of the instructor may be considered a violation of UAB’s non-academic conduct policies. The use of such devices to facilitate an act of academic misconduct (such as cheating or plagiarism) will be considered a violation of the UAB Academic Honor Code and will be sanctioned as outlined in the Code. See *UAB Undergraduate Policies and Procedures Handbook.*

instruction for webassign (http://www.webassign.net/)