General Physics -1
PHYS 201
University of South Carolina
Main Campus
Session: 08/18-12/02'11

Professor: T. Datta
Office: PSC 501/502 (777-7669) 12:300-1:30 pm MW or by appointment
Internet: LonCapa
Contact: datta@sc.edu (NB: grades will be discussed only in person but not by email/phone)

Class: PSC 002, 11:15 am-12:05 pm, MWF
Preq: MATH 115/122 or equivalent
Recitations: PSC 208 (time per section)
Text Book: Jones & Childers
Topics: Ch. 1-15 will be covered

Final Exam: 9:00 am, in class, 9th Dec 2010
Tentative Test dates: Sep.2, Test#1; Oct.7, T#2; Nov.18, T#3

Course Description:

- This is an algebra based, introductory mechanics and thermal physics course.
- University policies regarding attendance will be applicable.
- The student will need the math competence at the level of the text book.
- The student will be expected to solve problems on their own from the text book.
- Students knowledge and skills have to be demonstrated in quizzes and tests as well as in class presentations
- Participation in class discussions and in questions & answers sessions will be required.
- Effort by student is expected but not graded.

Learning outcome & goals: After successfully completing Phys 201 the student will learn how to critically analyze the basic principles, solve problems and compute numerical answers.

Home work: Algebra based qualitative & quantitative problems via LONCAPA .

In class work: Question & answers, working out examples and several pop quizzes.

Tests & Exams: 3, 1-hr tests, quizzes + Final (ID s may be checked @ tests).

Grading: To pass this course the student will have to show satisfactory performance in all the components of the course, viz in class, home work, and testing. Grade will be based on tests (4x10= 40%), Electronic HW 40 % + Quiz & in-class work 20%

Scale: Standard 10 pt, viz., 100-90% = A, 89-80% = B, etc.

- Through out the session test dates will be chosen in class after open discussions.
- Attendance may be taken at random for record keeping. More than Three unexcused absences may cause loss of grade.
- Makeup tests only with written medical or family excuses.
- Requests for incomplete grade "I" has to be made in writing and conditions negotiated should be written down and agree upon. Verbal will not be enough.
- Request for recommendation letters has to be supported with Students resume.

A Tentative Fall 2011 Calendar for Phys 201

- Consult Registrar's web page) for academic dates
- Last W" date Aug 24 & "" date Oct 13

Week:	Chapters:	Comments:
#1- 15 Aug	1	First lecture: Intro
#2- 22 Aug	2, 3	Units, Motion,
#3- 29 Aug	3	Vectors, 2-d motion
#4- 05 Sep	4 & 5	Laws of motion, Circular motions
#5- 12 Sep	5	Energy
#6- 19 Sep	6	Momentum
#7- 26 Sep	7	Gravity
#8- 03 Oct	8	Rotation-Oct 8 mid pt,
#9- 10 Oct	9	Solids & fluids
#10- 17 Oct	10	Thermal phys Fall break Oct 20 &21:
#11- 24 Oct	11	Thermal energy
#12- 02 Nov	12	Thermodynamics
#13- 07 Nov	13	Vibrations & Waves
#14- 14 Nov	13	Sound
#15- 21 Nov	14	Sound (Nov 25-29, Thanks giving break)
#16- 28 Nov	15	Finals prep

e-resource: http://www.mhhe.com/physsci/physical/jones/onlibr.mhtml

1.3 Unit Conversions
Unit Conversions Utility
Taha Mzoughi

1.4 Measurements, Calculations, and Uncertainties
Vernier (Measurement/Significant Figures.)
Fu-Kwun Hwang

2.6 Motion With Constant Acceleration
Kinematics-Constant Acceleration
Fu-Kwun Hwang

3.2 Addition of Vectors
Vector Addition in Two Dimensions
Fu-Kwun Hwang

Vector Addition in Three Dimensions
Fu-Kwun Hwang

3.5 Relative Velocity in Two Dimensions
Relative Motion
Fu-Kwun Hwang

3.7 Projectile Motion
Cannon
Fu-Kwun Hwang

Model Rocket Simulation
Thomas E. Wilson and Theron T. Trout

4.7 Some Applications of Newton's Laws
Newton's Second Law Experiment
Walter Fendt

Simple Machines-Pulleys
Fu-Kwun Hwang

5.1 Uniform Circular Motion
Rotational Motion
Fu-Kwun Hwang

5.2 Force Needed for Circular Motion
Centripetal Force
Fu-Kwun Hwang

Rotating Frames of Reference
Mark Sutherland

Orbits and Satellites
Fu-Kwun Hwang

6.6 Conservation of Mechanical Energy
Conservation of Energy
Fu-Kwun Hwang

8.2 Elastic Collisions in One Dimension
Newton's Cradle
Walter Fendt

Momentum 1-d Collisions
Fu-Kwun Hwang

8.3 Elastic Collisions in Two Dimensions
Elastic Collisions
Mark Sutherland

9.3 Torque
Beam Balance (Torque)
Walter Fendt

Torque Puzzle
Fu-Kwun Hwang

9.4 Static Equilibrium
Center of Gravity
Fu-Kwun Hwang

9.7 Angular Momentum
Oscillating Orbit
Fu-Kwun Hwang

9.10 Conservation of Energy: Translations and Rotations
Pool Ball/Rail Collision
Thomas E. Wilson and Theron T. Trout

10.3 Achimedes' Principle
Buoyant Force
Fu-Kwun Hwang

12.4 The Ideal Gas Law
Ideal Gas Law
Fu-Kwun Hwang

12.5 The Kinetic Theory of Gases
Kinetic Theory
Julio Gea-Banacloche

13.3 The Carnot Cycle and the Efficiency of Engines
Carnot Cycle
Xing M. (Sherman) Wang

13.PP Physics in Practice: Gasoline Engines
Otto Cycle
Xing M. (Sherman) Wang

14.1 Hooke's Law
Hooke's Law
Fu-Kwun Hwang

14.6 Damped Harmonic Motion
Damped Harmonic Oscillator

Mark Sutherland

15.1 Pulses on a Rope

Wave Harmonics-Plucking a String
Michel Gallant

15.4 Sound Waves

Image Voice Prints
Peter B.L. Meijer

Sound Harmonics
Fu-Kwun Hwang

15.5 Measuring Sound Levels

Sound (db-demo.)
EnviroMeasure

15.6 The Doppler Effect

Doppler Effect/Shock Waves
Fu-Kwun Hwang

Sound of Shapes
Kees van den Doel

15.11 Beats

Interference of two Sinusoidal Waveforms
Konstantin Lukin