

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

<u>Week:</u>	<u>Chapters:</u>	<u>Comments:</u>
#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 Archimedes' 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