

# PHYS 2113 – General Physics

Fall Semester, 2009

<b>Professor</b>	Dr. Cleo L. Bentley, Jr	<b>Office Hours</b>	TTh 12:30-2, 3:30-4, W1-6, F4-5
<b>Office</b>	Rm. 330ab NSB	<b>e-mail</b>	clbentley@pvamu.edu
<b>Phone</b>	936-261-3138, 3140	<b>Web address</b>	PHYS2113-P01 11:00-12:20 TTh Rm301

**CATALOG DESCRIPTION** Credit 3 semester hours. A Trigonometry -based general physics course to include measurements, Newton's laws of motion, statics, dynamics, mechanical energy, impulse, momentum, circular motion, torque, stress and strain, moduli, gravitation, and fluid mechanics.

**CO-REQUISITE:** MATH

**PREREQUISITES BY TOPIC:**

Physics lab

**TEXTBOOK:** Serway & Vuille, "Essentials of College Physics," 1<sup>st</sup> Edition, 2006, Thomson-Brooks/Cole

**COURSE GOALS:**

The purpose of this course is to give the student an exposure to the many physical and mathematical concepts as is given in non-calculus-based general physics from which he or she will be challenged and evaluated for understanding of concepts and skills which are fundamentally important to all branches of physical sciences, engineering and technology

**Course Outcomes :**

Upon completing this course the student will have knowledge of basic classical physics concepts, an enhanced applied knowledge of trigonometry, algebra, vector operations to include vector addition, dot product, cross product, Cramer's rule for simultaneous equation solutions, enhanced problem-solving skills, enhanced understanding of how things work in mechanical, heat, sound, electrical, magnetic, optical and relativistic systems, and the like.

**Course Policies:**

This course uses the lecture format. Reading and homework assignments will be made, and some problems will be graded. Occasional quizzes (expected everyday) will check the reading assignments. It is expected that you will need to spend at least two hours studying outside the class for each hour spent in class. That means you should plan to devote a minimum of nine hours per week for this class.

**Homework And Grading**

- Your grade will be based on class participation in the the form of explaining problems and taking quizzes (extra points to buffer your exam scores--you get paid for everything that you do), and four major exams (covering four to five current chapters each).
  - Attendance should be maintained. Particularly, there is no way to make-up a quiz or lab missed, but if you miss a quiz, two points are taken.
  - Remember: 'To hear is to forget, to see is to know, to do is to understand'.
  - Your final grade will be based on your overall average falling in the following categories: A--from 90 to 100; B--from 75 to 89; C--from 60 to 74; D--from 40 to 59; F-under
- \* Student Academic Appeals Process (undergraduate catalog, 1998-2001, pp. 88-91)

100—90	A
89—75	B
74—60	C
59—45	D
44—0	F

- Material in each reading assignment will be covered in the lecture on the date given. You should read the entire assignment and if possible work some of the problems before the class.
- 2)Material in each reading assignment will be covered in the lecture on the date given. You should read the entire assignment and if Assignments will be given each day. Problem assignments must be ready to hand in at the beginning of next class, or put on the board for you to explain for extra points up to 3 per problem. A random selection of these problems will be graded. Problem assignments and quizzes that are late or missed will not be made up.
- 4) Assignments will be given each day. Problem assignments must be ready to hand in at the beginning of next class, or put on the board for you to explain for extra points up to 3 per problem. A random selection of these problems will be graded. Problem assignments and quizzes that are late or missed will not be made up.

## Oral and Written Communications

Oral or Written communication assignments are given through exams, quizzes, board explanations, and lab assistance.

## Attendance Policy: ( undergraduate catalog, 1998-2001, pp.80

Classes will start at the prescribed time and will end at the prescribed time. Excessive absences or tardiness will result in lowered grades. Excessive absenteeism, whether EXCUSED or UNEXCUSED, may result in a student's course grade being reduced or in assignment of a grade of "F". Absences are accumulated beginning with the first day of class. University Undergraduate catalog ( 1998-2001, pp.80) provide more detail information.

## Student Academic Appeals Process (undergraduate catalog, 1998-2001, pp.88-91)

## ADA statement

## COURSE OUTLINE

Week	Topic	Note
1-8	FIRST 8 WEEKS  Discussion on what is physics, and why it is the backbone of our technological society. The historical need and development of the English Metric systems of measurement. A review of Algebra, trigonometry, and scientific notation. Vector addition. Quantitative description of motion-displacement, velocity, acceleration. Ideal equations of motion. Freely falling bodies. Projectile motion. EXAM #1. Circular Motion. Newton's Laws. First condition of equilibrium. Centripetal force. Satellite principles. Friction. Newton's second law detailed. Newton's universal law of gravitation. Motion in 2 dimensions. Dot product. Energy--kinetic, potential, work. Conservative v.s. dissipative forces. Motion in a resistive medium. Power. EXAM #2.	
9-16	SECOND 8 WEEKS  Impulse and momentum. Conservation of momentum. Collisions--elastic and inelastic. Propulsion. Angular displacement, velocity and acceleration, momentum, kinetic energy. Center of gravity. Moment of inertia calculations. Torques (moments). Second condition of equilibrium and applications. Stress and strain, elasticity and plasticity. Elastic modulus. Simple harmonic motion. Coil Spring. Simple pendulum. Center of oscillation. Hydrostatics. Pressure in a fluid. Archimedes' principle. Forces against a dam. Hydrodynamics--continuity equation, Bernoulli's equation and applications. EXAM #3.	
		3 <sup>rd</sup> Exam
5	13. Review	Final Exam