PHY 151 - General Physics I Syllabus

Credit 4 semester hours 3 hours of lecture per week, 3 hours of lab per week

# Prerequisites

MAT 102 or equivalent

# **Course Description**

Mechanics, thermodynamics, waves, and sound.

# **Rationale for Course**

Physics is the study of the physical phenomena that we observe in our universe. It is broad ranging and essential to all the sciences. This course aims to introduce the fundamental concepts of physics, focusing primarily on the area of Newtonian mechanics. Students will develop problem solving skills, learning how to logically approach and evaluate a variety of physical situations.

# Learning Objectives

- The student will become proficient in the use of algebra and trigonometry to describe and analyze classical linear motion and static mechanics problems.
- The student will become proficient in the use of vector mathematics.
- The student will be able to understand physical motion based on the principles of Newton's Laws and will become proficient in the analysis of classical mechanics problems using Newton's Laws.
- The student will be able to understand physical motion based on the principles of conservation of energy and conservation of momentum and will become proficient in the analysis of classical mechanics problems using these conservation principles.

# Academic Integrity

Students are expected to be honest and to submit their own work on exams and research papers. Strict adherence to the Mississippi College "Honesty Policy" (*2009–2010 Mississippi College Undergraduate Bulletin, pg. 60*) will be followed.

# Course Outline

- Introduction
- 1-D Motion
- 2-D Motion
- Newton's Laws of Motion
- Circular Motion
- Work and Energy
- Linear Momentum
- Fluids
- Vibrations and Sound
- Thermodynamics

## Method of Instruction

Class will consist primarily of presenting fundamental physics concepts, working problems, and discussing in-class demonstrations. Key points will be highlighted by the choice of examples, and these points will be discussed in the context of the example.

## Required Text and Materials

*Physics, 6th Edition,* by Giancoli. In addition to the text, you will need a scientific calculator and a laboratory data notebook. It may also be beneficial to bring a set of colored pencils to lecture and lab. Figures shown on the board are often drawn in multi-color for clarity, so it is recommended that the illustrations in your notes take advantage of this capability as well.

# Grading

Four or five examinations will be given during the semester. If given on Fridays, they will be untimed (within reason). You will be allowed to use an equation sheet. Exams will usually consist of multiple choice concept questions and open word problems. Homework will be collected following the completion of each chapter. Exams will constitute 75% of the final grade, labs will account for 20%, and homework will account for 5%. The course grade is determined from the percentage of points.

Scale:	Grade	Final Average
	А	90-100
	В	80-89
	С	70-79
	D	60-69
	F	0-59

Labs are not an afterthought! Each student must earn an average of 15 points (out of 20 given) for each lab in order to pass the course no matter what your overall average is. In other words, you can't pass the exams and fail to do the labs. Diligent effort on homework may account for a point being added to the final percentage.

## Makeup Tests

Makeup tests will be given only under the following circumstances:

- Consent of the instructor has been obtained prior to the test.
- An excused absence is obtained from a doctor or the Vice-President for Academic Affairs

## Absences

Mississippi College policies on attendance and academic integrity will be enforced. Please see the 2009–2010 Mississippi College Undergraduate Bulletin, pg. 56–57 for additional details of these policies. Students are responsible for all work missed during an absence.

## **Special Needs**

If you need special accommodations due to learning, physical, psychological, or other disabilities, please contact Dr. Buddy Wagner in the Counseling and Career Development Center. He may be reached by phone at 601-925-3354