

## SYLLABUS

**Department:** Physics and Engineering  
**Course Number:** PHY 235 and PHY 236

**Credit Hours:** 4 and 1 hours

- I. Title:**  
PHY 235-Mechanics, Heat and Wave Motion  
PHY 236-Mechanics, Heat and Wave Motion Laboratory
- II. Catalog Description:** PHY 235: Introduction to classical mechanics. Topics include kinematics, dynamics, energy, momentum, rotational motion, wave motion, and the laws of thermodynamics. Calculus and vector notation used. Must be taken concurrently with PHY 236. Three lectures and two recitation meetings per week. Co requisite: MAT 250. PHY 236: Laboratory course must be taken concurrently with PHY 235. Two hours laboratory per week.
- III. Purpose:** This course is designed for students planning to pursue a technical career (physics, engineering, computer science, chemistry, medicine, etc.). Its basic purpose is to introduce these students to the classical fields of physics commonly referred to as mechanics, thermodynamics and wave motion.
- IV. Course Objectives:** The student should gain an understanding of, and proficiency in the following items.
- A. The experimental foundations upon which physics is based.
  - B. The development of physical laws in the solution of problems.
  - C. The application of physical laws in the solution of problems.
  - D. The development of analytical, logical thought processes which are required for problem solution, and which are also applicable in analyzing situations which occur in everyday life.
  - E. The experimental techniques which are used in science.
  - F. A familiarity with laboratory equipment and measuring devices.
- V. Content Outline:**
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|--|------------------------------|
| A. Units, Physical Quantities, and Vectors | F. Impulse and Momentum      |
| B. Motion Along a Straight Line            | G. Rotational Motion         |
| C. Projectile Motion                       | H. Equilibrium of Rigid Body |
| D. Newton's Laws and Their Applications    | I. Periodic Motion           |
| E. Work and Energy                         | J. Temperature and Heat      |
- VI. Instructional Activities:** Lecture, discussion, problem solution, computer exercises, laboratory, and examinations.
- VII. Field, Clinical, and Laboratory Experiences:** PHY 236 consists of one 2-hour laboratory per week, with experiments complementing the PHY 235 lecture material.
- VIII. Resources:**  
Semester: Spring 2015  
Classroom: Blackburn 135  
Class time: 9:30-10:20 MTWF  
Instructor: John Crofton BL 164  
Office hours: As posted on office door or as arranged.
- IX. Grading Procedures:**  
Performance on regular examinations, homework sets, and a comprehensive final exam will be considered in determining the course grade. Students will be required to use WebAssign for all homework. The final grade will be based on the following:  
Two hourly tests (25% each), Homework 25%, Final Exam 25%.  
A = 90-100, B = 80-89, C = 70-79, D = 60-69, E = 0-59.

- X. Attendance Policy:** An attendance record will not be kept. Each student will be held responsible for all material covered, homework assignments made, changes in exam time, etc. that might have occurred during missed periods. Make-up tests will only be given due to serious illness or other university approved absences. Since no attendance record is kept, no student will be allowed to audit this class.
- XI. Academic Honesty Policy:** (Adopted by Board of Regents, February 14, 1975) Cheating, plagiarism (submitting another person's material as one's own), or doing work for another person which will receive academic credit are all impermissible. This includes the use of unauthorized books, notebooks, or other sources in order to secure or give help during an examination, the unauthorized copying of examinations, assignments, reports, or term papers, or the presentation of unacknowledged material as if it were the student's own work. Disciplinary action may be taken beyond the academic discipline administered by the faculty member who teaches the course in which the cheating took place. Note: Faculty reserve the right to invalidate any examination or other evaluative measures if substantial evidence exists that the integrity of the examination has been compromised.
- XII. Text:** Physics for Scientists and Engineers with Modern Physics, 9<sup>th</sup> Ed., Serway & Jewett.
- XIII. Prerequisites:** Calculus I (MAT 250) is a corequisite.
- XIV. Statement of Equal Opportunity and Affirmative Action** Murray State University endorses the intent of all federal and state laws created to prohibit discrimination. Murray State University does not discriminate on the basis of race, color, national origin, gender, sexual orientation, religion, age, veteran status, or disability in employment, admissions, or the provision of services and provides, upon request, reasonable accommodation including auxiliary aids and services necessary to afford individuals with disabilities equal access to participate in all programs and activities. For more information, contact Sabrina Y. Dial, Director of Equal Opportunity, Murray State University, 103 Wells Hall, Murray, KY 42071-3318. Telephone: 270-809-3155 (voice), 270- 809-3361 (TDD).