

PHY 308 – Classical Mechanics Syllabus

Credit:

3 semester hours

Prerequisites

PHY152 or PHY252 and MAT 122 or instructor's consent

Course Description

Two and three dimensional kinematics and dynamics, curvilinear coordinates, vector analysis, projectile motion, conservative and nonconservative forces, potential theory, rigid bodies.

Rationale for Course

Mastery of Newtonian physics is essential to the advanced study of physics and engineering physics applications.

Learning Objectives

Students are presented with both analytical and computational problem solving techniques for a broad spectrum of classical mechanics problems.

Academic Integrity

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

Course Outline:

- MATLAB® tutorial
- Newton's second law of motion in one dimension
- Vectors and differential calculus
- Motion in two and three dimensions
- Systems of coordinates
- Central forces and gravitation
- Systems of particles
- Rigid body motion
- Lagrangian dynamics

Method of Instruction

Class will consist primarily of presenting fundamental physics concepts and working problems. Key points will be highlighted by the choice of problems, and these points will be discussed in the context of the problem.

Recommended Text

Classical Mechanics with MATLAB® Applications, Javier E. Hasbun, Jones and Bartlett Publishers

Grading

Final grades will normally be determined by the average scores on a number of examinations. Topical reports may also be assigned by the instructor. A ten point scale will be used to assign letter grades.

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 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.