



Course Syllabus

PHYS 1401: College Physics

Catalog Description: Fundamental principles of physics, using algebra and trigonometry; the principles and applications of classical mechanics and thermodynamics, including harmonic motion, mechanical waves and sound, physical systems, Newton's Laws of Motion, and gravitation and other fundamental forces; with emphasis on problem solving.

Lecture hours = 3 Lab hours = 3

Prerequisites: MATH 1314 College Algebra (3 SCH version) and Math 1316 Plane Trigonometry OR

MATH 2312 Pre-Calculus Math (3 SCH version) (Math 2412 Pre-Calculus may substitute for 2312

Semester Credit Hours: 4

Lecture Hours per Week: 3

Lab Hours per Week: 3

Contact Hours per Semester: 96

State Approval Code: 40.0801.53 03

Alternate Operations During Campus Closure: In the event of an emergency or announced campus closure due to a natural disaster or pandemic, it may be necessary for Panola College to move to altered operations. During this time, Panola College may opt to continue delivery of instruction through methods that include, but are not limited to: online learning management system (CANVAS), online conferencing, email messaging, and/or an alternate schedule. It is the responsibility of the student to monitor Panola College's website (www.panola.edu) for instructions about continuing courses remotely, CANVAS for each class for course-specific communication, and Panola College email for important general information.

Class section meeting time:

Core Components and Related College Student Learning Outcomes

This course counts as part of the academic requirements of the Panola College Core Curriculum and an Associate of Arts or Associate of Science degree. Yes No: If no, skip to Instructional Goals. The items below marked with an X reflect the state-mandated outcomes for this course **IF this is a CORE course:**

Critical Thinking Skills – to include creative thinking, innovation, inquiry and analysis, evaluation and syntheses of information

CT1: Generate and communicate ideas by combining, changing, or reapplying existing information

- CT2: Gather and assess information relevant to a question
- CT3: Analyze, evaluate, and synthesize information
- Communication Skills – to include effective development, interpretation, and expression of ideas through written, oral, and visual communication
- CS1: Develop, interpret, and express ideas through written communication
- CS2: Develop, interpret, and express ideas through oral communication
- CS3: Develop, interpret, and express ideas through visual communication
-
-
- Empirical and Quantitative Skills – to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions
- EQS1: Manipulate and analyze numerical data and arrive at an informed conclusion
- EQS2: Manipulate and analyze observable facts and arrive at an informed conclusion
- Teamwork – to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal
- TW1: Integrate different viewpoints as a member of a team
- TW2: Work with others to support and accomplish a shared goal
- Personal Responsibility – to include the ability to connect choices, actions, and consequences to ethical decision-making
- PR1: Evaluate choices and actions and relate consequences to decision-making
- Social Responsibility – to include intercultural competence, knowledge of civic responsibility, and the ability to engage effectively in regional, national, and global communities
- SR1: Demonstrate intercultural competence
- SR2: Identify civic responsibility
- SR3: Engage in regional, national, and global communities

Instructional Goals and Purposes: The purpose of this course is to:

1. Demonstrate the ability to apply Newton's Laws and concepts of Conservation of Energy and Momentum to the study of mechanical systems.
2. Describe the Laws of Thermodynamics.
3. Describe proper laboratory methodology and discuss the theory behind its use.

4. Solve mechanics and thermodynamics problems using conservation principles shown. **Learning Outcomes:**

After studying all materials and resources presented in the course, the student will be able to:

1. Determine the components of linear motion (displacement, velocity, and acceleration), and especially motion under conditions of constant acceleration.
2. Apply Newton's laws to physical problems including gravity.
3. Solve problems using principles of energy.
4. Use principles of impulse and linear momentum to solve problems.
5. Solve problems in rotational kinematics and dynamics, including the determination of the location of the center of mass and center of rotation for rigid bodies in motion.
6. Solve problems involving rotational and linear motion.
7. Demonstrate an understanding of equilibrium, including the different types of equilibrium.
8. Discuss simple harmonic motion and its application to quantitative problems or qualitative questions.
9. Solve problems using the principles of heat and thermodynamics.

10. Solve basic fluid mechanics problems.

Course Content:

A general description of lecture/discussion topics included in this course are listed in the Learning Objectives section of this syllabus.

Students in all sections of this course will learn the following content:

Linear and Rotational Motions	Gravitational Processes	
Newton's Laws of Motion	Friction	
Work-Energy Principles	Fluid Mechanics	Momentum-
Impulse Principles	Heat and Thermodynamics	

Methods of Instruction/Course Format/Delivery:

This course is offered in a classical, face to face manner in a classroom and laboratory format on campus in room MRL 203, with labs given in room HNS 1309.

Major Assignments / Assessments:

The following items will be assigned and assessed during the semester and used to calculate the student's final grade.

Assignments

1. 5 tests (Kinematics, Newton's Laws of motion and forces, Momentum and Energy, Fluid Mechanics, Rotational Motion and Thermodynamics, Final Exam)
2. One homework assignment each week
3. Quizzes
4. Labs

Assessment(s):

1. Kinematics
2. Newton's Laws of motion and forces
3. Momentum and Energy
4. Rotational Motion, Fluid Mechanics and Thermodynamics
5. Final Exam

Course Grade:

The grading scale for this course is as follows:

- Lecture Portion – 75% (Tests: 50%, Quizzes and Homework: 50%)
- Lab Portion – 25% (Labs 100%)

Texts, Materials, and Supplies:

- Textbook: College Physics by Sears and Zemansky, 10th Edition
- Pencil, Paper, Calculator, Notebook

Required Readings:

- None **Other:**
- For current texts and materials, use the following link to access bookstore listings: <http://www.panolacollegestore.com>
- For testing services, use the following link: <http://www.panola.edu/elearning/testing.html>
- If any student in this class has special classroom or testing needs because of a physical learning or emotional condition, please contact the ADA Student Coordinator in Support Services located in the Administration Building or go to <http://www.panola.edu/student-success/disabilitysupportservices/> for more information.

- Withdrawing from a course is the student's responsibility. Students who do not attend class and who do not withdraw will receive the grade earned for the course.
- Student Handbook, *The Pathfinder*:
<http://www.panola.edu/studentsuccess/documents/pathfinder.pdf>