



Course Syllabus

PHYS1402- College Physics

Revision Date: 1/10/2018

Catalog Description: Fundamental principles of physics, using algebra and trigonometry; the principles and applications of Electricity, Magnetism, Wave motion, Optics and Nuclear Physics, including harmonic motion, mechanical waves and sound, physical systems, Behavior of light, and various electric laws with emphasis on problem solving.

Lecture hours = 3, Lab hours = 1

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: 8AM to 9:15 AM M

Lab Hours per Week: 9:30 AM to 12:05 PM M

Contact Hours per Semester: 48

State Approval Code: 40.0801.53 03

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 critical thinking and learning to solve physical problems.
2. Describe the Laws of Electricity and Magnetism, wave mechanics, nuclear physics and optics.
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 Solve problems and use critical thinking in topics covered this semester.

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:

Wave Mechanics	Nuclear Physics
Electricity	Magnetism
Optics	Circuitry

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 HNS 1309, with labs given in room HNS 1309.

Major Assignments / Assessments:

2

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

Assignments:

1. 4 Tests (Nuclear Physics, Optics and Waves, Electricity and Magnetism, Final Exam)
2. One homework assignment each week
3. Quizzes and in class participation
4. Lab assignments

Assessment(s):

1. Nuclear Physics and Atomic Structure
2. Wave Mechanics and Optics
3. Electricity, Magnetism and Circuitry
4. 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%)

Textbook, Materials and Supplies needed:

Textbook: College Physics by Sears and Zemansky, 10th Edition

Supplies and Materials: Pencils, paper and calculator.

Recommended 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/student-success/documents/pathfinder.pdf>

