



NORTHWEST FLORIDA STATE COLLEGE

Course Syllabus

Course Name: General Physics with Calculus I

Course Number: PHY2048C

Section: 20541

Credit Hours: 3

Instructor Name: Dr. Christopher Sweeney

Instructor Office Location: 350 Niceville Campus

Instructor Email: sweeneyc@nwfsc.edu

Course Curriculum

This course provides a calculus-based introduction to Classical Mechanics, the quantitative study of motion. Topics studied will include the kinematics of point particles, and Newton's laws of motion. The notion of conserved quantities will also be introduced from the notion of isolation of a physical system from its surroundings. Problem-solving methods stemming from conservation laws will be explored. Calculus will be introduced gradually, and only after it has been covered in the standard introductory course in differential Calculus.

Goals

- Students will understand the notion of a point particle and how its kinematics are described mathematically.
- Students will understand the dynamical origin of motion in its Newtonian form.
- Students will understand the basis of the conservation laws for mechanical energy, linear momentum, and angular momentum.
- Students will understand the basis of periodic motion.

Objectives

- Students will define terms used to measure and describe physical quantities.
- Students will employ the equations of kinematics to describe the motion of point particles.
- Students will employ critical thinking skills to formulate and solve problems involving conserved quantities.
- Students will formulate empirically testable hypotheses derived from the study of physical processes and phenomena.
- Students will apply logical reasoning skills through scientific criticism and argument to separate science from non-science.
- Students will solve problems concerning periodic motion.

Expectations of the Student

Office Hours: The instructor will be available a minimum of six hours a week outside class to answer questions and address concerns of student.

The Use of Canvas as a Learning Management System: All courses utilize Canvas as an online class component. Students can access the course syllabus and their grades at any time and may be required to submit coursework through Canvas. Access to a computer with internet connectivity is therefore required for the course. Students have free access to computers at all campus centers.

Email Response Time of the Instructor: Students can expect responses to email inquiries with one or two business days. (Note: The College is closed on Fridays and on weekends.)

How Student Performance Will be Measured

Student performance will be measured by one or more of the following methods:

- Examinations
- Homework assignments
- Term Paper(s)
- Quizzes