Physics, Part 1 (PHSCS-041-300-001)

Syllabus

Course Description

An engaging and highly interactive course where students consistently perform experiments, gather and analyze data, and draw conclusions. This course covers the scientific method, waves, motion, and forces. This is the first of a two-part series.

Prerequisites

Algebra, Part 1 or equivalent

Course Materials

A spreadsheet program is needed. Some activities use common household items. A virtual option is available if the needed items are not available.

Course Outcomes

As students complete the course assignments, they will increase their knowledge, improve a 21st-century skill, and develop an attribute.

Knowledge: Physics

In this course, *knowledge* refers to the subject matter and content students will learn while completing the readings, practices, quizzes, and assignments.

On successful completion of this course, students will be able to do the following:

- Ask scientific questions and design investigations to answer the questions.
- Explain how waves carry energy and information.
- Use Newton's Laws of Motion to describe and calculate motion caused by forces.

- Use a free-body diagram to represent forces acting on an object and predict motion and acceleration.

21st-Century Skill: Critical Thinking—Constructing Arguments

As students complete this course's assignments, they will gain skills in *Constructing Arguments*. This skill is part of Critical Thinking.

Attribute: Gratitude

This course focuses on developing the attribute of *gratitude* in the context of Physics.

Grading and Assignments

The letter grade in this course will be based on these assignments and exams.

Assignment or Exam	Grading	Percent of Total Grade
Assignments and Content Guides	Teacher-Graded and Computer-Graded	40%
Homework	Computer-Graded	20%
Unit Quizzes and Midcourse Quiz	Computer-Graded	20%
Final Exam	Computer-Graded	20%

*Students must pass the final exam to earn credit for the course. They may retake the final exam once for a fee.

Assignments and Content Guides

Instructor-graded content guides, labs, reflections, and projects give students the opportunity to show how well they are meeting the course outcomes. There are also some computer-graded labs included.

Homework

Homework assignments are computer-graded and cover the material from the lessons. These can be taken multiple times and the highest score is kept.

Unit Quizzes

Unit quizzes are computer-graded and cover the material from the modules in the unit.

Midcourse Quiz

This computer-graded quiz will cover the material up to the midcourse quiz. The questions on the midcourse quiz will be similar in format to the questions on the final exam.

Final Exam

Students must pass the final exam to earn credit for the course; they may retake it once, for a fee, upon request.

Course Grade

The letter grade will be calculated according to these percentages.

Percent to Letter Grade Calculation	
A	100%–93%
A–	<93%–90%

B+	<90%–87%
B	<87%–83%
B–	<83%–80%
C+	<80%–77%
C	<77%–73%
C–	<73%–70%
D+	<70%–67%
D	<67%–63%
D–	<63%–60%
F (fail)	<60%–0%

Due Dates

The due dates in the course are only suggestions to help the students pace themselves. You do *not* need to complete assignments, quizzes, and exams by the due date set in the course.