



Ephrata High School Course Syllabus



Honors Physics
#4300

I. Course Description

Because the major concepts of physics are foundational to all areas of science, it is particularly appropriate for students who plan to major in a post-high school science discipline such as biology, pre-medicine, architecture or engineering to have an in-depth presentation of physics. This Algebra II-based physics course provides students with a rigorous and comprehensive focus on some of the major concepts of mechanics such as the laws of motion and energy, and may include study of the nature of wave phenomena, electricity and light. Students will be expected to think critically about the physics concepts studied, and to use creativity and logic to solve higher-ordered problems. Laboratory and experiential activities are an essential part of the course.

Eligibility for this course is limited to those students who are concurrently enrolled in a calculus course and/or with the permission of the instructor.

II. Materials & Equipment

Physics, by Wilson, Buffa & Lou

III. Course Goals & Objectives

Students will:

Experience problem solving using the scientific method.

Develop proficiency in the skills necessary for working in the laboratory.

Acquire a body of knowledge regarding Physics.

IV. Course Topics (Summary Outline)

Primary Focus:

- I. Measurement and Problem Solving
- II. Kinematics
- III. 2D Motion
- IV. Force & Motion
- V. Work & Energy
- VI. Linear Momentum & Collisions
- VII. Circular Motion and Gravitation
- VIII. Rotational Motion and Equilibrium

As time allows:

- IX. Electric Charge, Forces & Fields
- X. Electric Current & resistance
- XI. Basic Electric Circuits
- XII. Reflection & Refraction of Light
- XIII. Mirrors & Lenses
- XIV. Other Stuff

V. Assignments & Grading

A combination of tests, quizzes, laboratory activities, classroom assignments, and homework assignments will be used to evaluate students. All work will be assigned a grade value.

Approximate grade values:

Tests 60%. Quizzes 15%. Labs, projects & classwork 20%. Homework 5%.

Each marking period grade will count 20% for the final grade, totaling 80%. The final 20% will be the cumulative final, which in combination with the four marking periods will be 100%.

