

# Physics Honors

## Course Overview and Syllabus

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**Course Number:** SC3211H

**Grade level:** 11–12

**Prerequisite Courses:** Algebra

**Credits:** 1.0

### Course Description

This rigorous full-year course provides students with an engaging honors-level curriculum that emphasizes abstract reasoning and applications of physics concepts to real-world scenarios. Topics are examined in greater detail than general physics and provide a solid foundation for collegiate-level coursework. Course components include one- and two-dimensional motion, momentum, energy and thermodynamics, harmonic motion, waves, electricity, magnetism, and nuclear and modern physics. Throughout the course, students participate in a variety of interactive and hands-on laboratory activities that enhance concept knowledge and develop scientific process skills, including scientific research and technical writing.

### Course Objectives

Throughout the course, you will meet the following goals:

- Explain the relationship between forces and motion.
- Recognize the interdependence of work and energy.
- Relate heat and temperature change on the macroscopic level to particle motion on the microscopic level.
- Demonstrate an understanding of waves, including sound and light.
- Investigate the electromagnetic spectrum.
- Analyze the connection between electricity and magnetism.
- Examine nuclear reactions and their applications.
- Explore recent advancements in physics such as the dual nature of light and nanotechnology.

### Student Expectations

This course requires the same level of commitment from you as a traditional classroom course would. Throughout the course, you are expected to spend approximately 5–7 hours per week online on the following activities:

- Interactive lessons that include a mixture of instructional videos and tasks
- Labs that allow you to explore physics applications

- Assignments in which you apply and extend learning in each lesson
- Assessments, including quizzes, tests, and cumulative exams

## Communication

Your teacher will communicate with you regularly through discussions, e-mail, chat, and system announcements. You will also communicate with classmates, either via online tools or face to face, as you collaborate on projects, ask and answer questions in your peer group, and develop your speaking and listening skills.

## Grading Policy

You will be graded on the work you do online and the work you submit electronically to your teacher. The weighting for each category of graded activity is listed below.

Grading Category	Weight
Quiz	20%
Test	30%
Exam	20%
Assignment	10%
Lab	10%
Additional	0%
Project	10%

## Scope and Sequence

When you log into Edgenuity, you can view the entire course map—an interactive scope and sequence of all topics you will study. The units of study are summarized below:

**Unit 1:** Scientific Process

**Unit 2:** One-Dimensional Motion and Forces

**Unit 3:** Two-Dimensional Motion

**Unit 4:** Work and Energy

**Unit 5:** Thermodynamics

**Unit 6:** Waves and Sound

**Unit 7:** Waves and Light

**Unit 8:** Electricity and Magnetism

**Unit 9:** Nuclear and Modern Physics