



Radnor High School  
Course Syllabus

AP Physics C (Honors)  
0340

**Credits: 1.0 Credit**  
**Weighted: Yes**  
**Year**  
**Format: Meets Daily**

**Precalculus**

**Grades:**

**Prerequisites: Honors Physics and Honors Length:**

**Corequisite: Calculus I or Higher**

### **Overall Description of Course**

AP Physics C is a calculus based college-level course that follows the prescribed curriculum of the College Board. The topics in this fast paced class include both Mechanics (Kinematics, Dynamics, Energy, Circular Motion and Oscillations) and Electricity and Magnetism (Electrostatics, Conductors, Electric Circuits, Magnetic Fields, and Electromagnetism). This full year course prepares students for the AP Physics C exam. Students taking AP Physics C must have some of the best mathematic skills. This course is for extremely motivated students who enjoy problem solving and performing authentic labs. It is intended for those students who are going to pursue a career in science, medicine or engineering.

### **Course Overview**

#### **Student Objectives:**

1. To prepare students for the AP Physics C exam.
2. To be able to solve multi-step problems in physics from fundamental laws in physics using calculus
3. To be able to set up labs independently and solve lab problems independently.

#### **Materials & Texts**

##### **MATERIALS**

Scientific or graphing calculator, ruler and protractor

##### **TEXT:**

Halliday and Resnick Physics by Jearl Walker, 10th edition.

#### **Units**

##### **Mechanics:**

- Chapter 1: Introductory Mathematics
- Chapter 2: Motion Along a Straight Line
- Chapter 3: Vectors
- Chapter 4: Motion in Two and Three Dimensions
- Chapter 5: Force and Motion - I
- Chapter 6: Force and Motion - II
- Chapter 7: Kinetic Energy and Work
- Chapter 8: Potential Energy and Conservation of Energy
- Chapter 9: Center of Mass and Linear Momentum
- Chapter 10: Rotation
- Chapter 11: Rolling, Torque, and Angular Momentum
- Chapter 12: Equilibrium and Elasticity

Chapter 13: Gravitation  
Chapter 15: Oscillations

**Electricity and Magnetism:**

Chapter 21: Electric Charge  
Chapter 22: Electric Fields  
Chapter 23: Gauss' Law  
Chapter 24: Electric Potential  
Chapter 25: Capacitance  
Chapter 26: Current and Resistance  
Chapter 27: Circuits  
Chapter 28: Magnetic Fields  
Chapter 29: Magnetic Fields Due to Currents  
Chapter 30: Induction and Inductance  
Chapter 31: Electromagnetic Oscillations and Alternating Current  
Chapter 32: Maxwell's Equations; Magnetism of Matter