

AP PHYSICS

Instructor: Timothy M. Leung, Ph.D.

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Fall 2017

Class Time

Saturdays 4:20pm–6:50pm (Starts November 11, 2017)

Course Material

- No textbook required
- Course outline, presentation slides, homework assignments and solutions are downloadable from school website
- Please bring
 - A pen/pencil for note-taking
 - A scientific calculator for working in-class example problems

Course Outline

1. Topics in *AP Physics C: Mechanics*

- (a) Kinematics and Dynamics using Calculus
- (b) Momentum and Energy
- (c) General circular motion and angular momentum
- (d) Oscillation (Simple harmonic motion)—general equation of oscillatory systems, pendulums and spring-mass systems
- (e) Universal gravitation—Newton's law of universal gravitational, gravitational potential energy, Kepler's laws of planetary motion
- (f) **Review and practice exam**

2. Topics in *AP Physics C: Electricity and Magnetism* ("E&M")

- (a) Electrostatics—electric force and electric field from point charges; electrical potential energy, electric potential and potential difference; charged parallel plates
- (b) Capacitance
- (c) Current, Resistance and DC circuit
- (d) Magnetism
- (e) **Review and practice exam**

3. Topics in *AP Physics 1* and *AP Physics 2*

- (a) Fluid dynamics
- (b) Thermal physics

- (c) Waves
- (d) Light and Optics
- (e) Modern Physics
- (f) **Review and practice exams**