

Advanced Placement Physics Course Syllabus
Heritage High School, 2011 – 2012
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Course Description: Advanced Placement Physics B is an introductory, college-level course. Topics include classical as well as modern physics. Emphasis is placed on conceptual knowledge as well as problem solving skills utilizing algebra and trigonometry in conjunction with laboratory exercises to develop critical thinking skills that are necessary for success in college or a variety of technical careers. The student will take the Advanced Placement Exam in Physics in May and success on this exam can allow the student to earn college or university credit.

Text: Walker (2010) *Physics 4 ed: Pearson*

Required Materials: 3-Ring Binder

Scientific Calculator Loose-leaf Paper No. 2 Pencils
 USB Storage Device 3-Ring Plastic Lab Folder Home internet access

Course Outline: The course is structured after guidelines from the College Board AP Physics B model which sets the standards for exam content percentages. These are:

Topics	Percentage of Exam	Textbook Chapters	Labs (per block) (Student Conducted)
Newtonian Mechanics (11 weeks) • Kinematics • Newton's Laws of Motion • Work, Energy, Power • Systems of particles, linear momentum • Circular motion and rotation • Oscillations and Gravitation	35% 7% 9% 5% 4% 4% 6%	Chap.1- 13 •Chap. 1-4 • Chap.5-6 • Chap. 7 • Chap. 8 - 9 • Chap.10 Chap. 12 - 13	• Precision/Error Analysis Lab • Motion • Experimental Determination of g • Projectile Motion • Equilibrium of Forces • Coefficient of Friction Lab • SHM/ Pendulum Lab
Fluid Mechanics and Thermal Physics (3 weeks) • Fluid Mechanics • Temperature and Heat • Kinetic theory and thermodynamics	15% 6% 2% 7%	Chap. 15 - 18 • Chap 15 • Chap. 16 • Chap. 17 -18	• Pascal's Principle Lab
Electricity and Magnetism (9 weeks) • Electrostatics • Conductors, capacitors, dielectrics • Electric Circuits • Magnetostatics • Electromagnetism	25% 5% 4% 7% 4% 5%	Chap. 19 - 23 • Chap. 19, 20 • Chap. 19, 20 • Chap. 21 • Chap. 22 • Chap. 22,23	• Ohm's Law • Series/Parallel/RC Circuits (Kirchoff's Laws) • Faraday's Law
Waves and Optics (3 weeks) Wave motion • Physical Optics • Geometric Optics	15% 5% 5% 5%	Chap. 14,25,26,28 • Chap.14, 25,28 • Chap. 14, 25 • Chap. 26	• Snell's Law Lab • Lenses and Mirrors • Interference and Diffraction

Atomic and Nuclear Physics (2 weeks) • Atomic physics and quantum effects • Nuclear physics	10% 7% 3%	Chap. 30 - 32 • Chap. 30 - 31 • Chap.32	• Quantum Potpourri (virtual)
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Expectations:

Attendance: In short, you must attend and actively participate in order to be successful in this class. Students are expected to follow District and School guidelines regarding tardies and absences. Excessive tardies and/or absences can lead to dire consequences due to missed instruction or graded assignments.

Assignments:

- This is a college-level class and the student will come to class prepared. This includes such things as bringing necessary materials, pre-reading, completing homework, having well-thought questions for the instructor. In this vein, the student should aim beyond the assigned work provided in class.
- CLASS READINGS ARE REQUIRED. Success at this level relies on instruction during class time as well as individual reading on the part of the student.
- It is strongly suggested that the student register with the College Board (<http://www.collegeboard.com>) for AP Physics B. This will provide the student with essential information regarding the AP test, review materials, and other information involving physics.

Laboratory Exercises: These are listed in the Course Outline but may be adjusted as the instructor sees fit. The labs are designed to correlate with and expand upon the lecture and reading material. Lab exercises may be hands-on, demonstration, or virtual. The instructor will set due dates and format guides for the student.

Evaluation: Per policy, the Newport News Public Schools grading scale is used and each quarterly grade is based on the following percentages:

Tests 40% Homework/Classwork 20%
 Quizzes 10% Projects/Science Project 10%
 Labs 20%

Necessary Materials: binder with paper, pens, pencils, scientific calculator, flash drive, school agenda

As a teacher, I promise to make sure students will be prepared to take the AP Exam. I will stay after school on Tuesdays to specifically tutor and reteach items taught in AP Physics. My goal is for each student to receive at least a 3 on the AP Exam. I will not allow students to interfere with instruction or the learning of other students. My website will be maintained and students will be able to find assignment sheets, power points, and worksheets. I will stay in contact with parents if students' grades fall below a "C", are not participating or disrupting the learning of other students. I will also return graded assignments in a timely fashion, and will post grades on SIS immediately after grading. As a teacher, I will also provide a grade report sheet every two weeks.

Parents and Students: Please acknowledge by your signatures below that you have reviewed, understood, and accepted the criteria outlined in the syllabus. Return this form ASAP to the instructor. This will serve as the student's first assignment grade in this class.

We, the undersigned, have read and understand the information herein. Furthermore, the student has the responsibility to have this syllabus signed and kept in his or her binder.

Student: _____

Parent: _____

