

ADVANCED PLACEMENT PHYSICS 2 2019-2020

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INTRODUCTION

Congratulations on choosing physics, the ultimate science! A background in physics will help you with many career paths, especially science and engineering. The concepts you learn in this class will develop your thinking ability and help you to understand the world around you. This course is equivalent to what is called "College Physics" at many American universities. It is the most difficult course many students take in the first two years of college. High school students usually take this class because they are interested in a career in medicine, biology, or other sciences. Others are considering engineering or physical sciences but aren't in calculus. Some just want a challenge! This course will require in-depth critical thinking skills and mathematical applications. Motivation and study habits are of greater importance than brilliance. (Memorizing will NOT be enough to secure a high grade in the course) I have several goals for this class: to develop a correct conceptual understanding of basic physics, to develop your analytical, computational, experimental skills, and to prepare for the AP 1 exam. The mathematics on the exam is relatively simple, but requires you to apply many mathematical concepts you have learned in previous years. You must understand a lot of physics to be able to tackle the different kinds of problems on the test. We will work with students to be able to have a strong conceptual understanding of the material and students will be challenged to show deep understandings.

COURSE OUTLINE

Electric Force, Field, and Potential

Electric Circuits

Magnetism and Electromagnetic Induction

Geometric and Physical Optics

Quantum, Atomic, and Nuclear Physics

Fluids: Pressure and Forces

Thermodynamics

AP Testing Strategies and Review

EXTRA HELP

I should be your first resource for help in this course when you find it difficult. Quick questions about homework can often be answered by email. For more extensive help, make arrangements in advance to see me before or after school or during lunch. Be aware that these policies may change over the course of the year.

SUGGESTED MATERIALS – Bring starred (*) items to class each day • Graphing or Scientific Calculator (a class set is available)* • Pencil and eraser* • Internet access outside of class • Notebook Paper • Dry Erase Markers (Please keep in backpack - students use these on a regular basis)* • Tissue box for classroom donation • 5 Steps to a 5 AP Physics 1 Review Book

GRADING and POLICIES

Minor Grades (30%):

HOMEWORK/DAILY /MINOR LABS/ LAB QUIZZES

Major Grades (70%):

INDIVIDUAL ASSESSMENTS (TESTS/ QUIZZES/ FORMAL LAB WRITE-UP)

ADDITIONAL ITEMS ABOUT GRADING This is a difficult course, but students who keep up with the work and seek extra help when they need it usually make an acceptable grade. (Please come see me if you are having issues with the course) If your grade is lower than you like, do not ask me to "come up with" something for extra credit. I will only discuss your personal grades outside of class time. Make-up week needs to be completed within a week.

CLASSROOM ACTIVITIES

This is a student-centered classroom. More often, class time is spent in student whiteboard presentations, content practice, class discussions, labs and demonstrations.

You are expected to:

- use class time only for activities related to class
- act in a way that promotes learning (both your own and others) whenever you are involved in a class activity
- accept responsibility for your own behavior
- to follow all lab safety rules and always act safely in the lab
- strive to be the best version of you

You are encouraged to:

- create study groups/ physics is learned easier through discussion
- be proactive: get help as soon as something doesn't make sense.
- get a review book and use it throughout the year

