AP Physics 1
PH32AP/PH42AP

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Description

AP Physics 1 is a full-year course that is the equivalent of a first-semester introductory college course in algebra-based physics. Students cultivate their understanding of physics through inquiry-based investigations as they explore these topics: kinematics, dynamics, circular motion and gravitation, energy, momentum, simple harmonic motion, and torque and rotational motion.

Textbooks

Wolfe, G., Gasper, E., Stoke, J. Kretchman, J. Anderson, D. Czuba, N., Oberoi, S., Puiji, L., Lyublinskaya, I., Ingram, D. (2015). College Physics for AP® Courses. OpenStax. https://openstax.org/details/books/college-physics-ap-courses

Giancoli. Douglas C. (2009). Physics, Pearson Prentice Hill.

Laboratory Work

Twenty-five percent of instructional time will be spent in hands-on laboratory work, with an emphasis on inquiry-based investigations that provide students with opportunities to demonstrate the foundational physics principles and apply the science practices. Students will have opportunities to engage in the seven science practices as they design plans for experiments, make predictions, collect and analyze data, apply mathematical routines, develop explanations, and communicate about their work.

Students will be required to maintain a laboratory notebook. Colleges may require students to present their laboratory materials from AP science courses before granting college credit for laboratory work, so students should be encouraged to retain their laboratory notebooks, reports, and other materials.

Students will be required to write formal lab reports or presentations for some of the laboratory activities. These will be graded and form part of the final grade in the course.

Exams

The AP Physics 1 Exam assesses student application of the science practices and understanding of the learning objectives outlined in the course framework. The AP exam is written in May and is 3 hours long and includes 50 multiple-choice questions and 5 free-response questions. The 5 free-response questions may appear in any order on the AP Exam. A four-function, scientific, or graphing calculator is allowed on both sections of the exam. The details of the exam, including exam weighting and timing, are as follows:

Section	Question Type	Number of Questions	Weighting	Timing
IA	Single-select multiple-choice questions (discrete or in sets)	45	50%	90 minutes
IB	Multiple-select multiple-choice items (all discrete)	5		
II	Free-response questions	5	50%	90 minutes
	Question 1: Experimental Design (12 points) Question 2: Qualitative/Quantitative Translation (12 points) Question 3: Paragraph Argument Short Answer (7 points) Questions 4 and 5: short Answer (7 points each)			

The multiple-choice section of the exam is weighted as follows:

Unit of Instruction	Exam Weighting	Number of Questions
Kinematics	12-18%	6-9
Dynamics	16-20%	8-10
Circular Motion and Gravitation	6-8%	3-4
Energy	20-28%	10-14
Momentum	12-18%	6-9
Simple Harmonic Motion	4-6%	2-3
Torque and Rotational Motion	12-18%	6-9

There will be a school-based exam at the end of January. The format and weighting will be the same as the AP exam. The multiple-choice section will assess the material in the first four units and will be weighted as follows:

Unit of Instruction	Exam Weighting	Number of Questions
Kinematics	20-26%	10-13
Dynamics	26-30%	13-15
Circular Motion and Gravitation	10-12%	5-6
Energy	34-42%	17-21

Tests and Quizzes

There will be a test at the end of each unit as well as several cumulative tests throughout both semesters. These tests are heavily weighted and will form the bulk of your grade. There will be NO rewrites.

An online quiz will be available for all tests to help you prepare. Each quiz will be scored out of 10. You will have 5 chances to complete each quiz. The highest score will be included in the final grade.

Assignments

Assignments will consist of questions from both textbooks, questions from the AP Physics 1 workbook and online formative quizzes. While these assignments are not counted as part of the final grade, students are encouraged to complete these in a timely manner to be prepared for the tests. If you do not finish assignments in class, you should be prepared to finish them at home. Daily review of course material at home is important for success.

Answers to all assignments are available on the class website or will be handed out in class.

Evaluation

PH32AP (Semester 1)		PH42AP (Semester 2)	
Tests	60%	Tests	70%
Quizzes	10%	Quizzes	10%
Laboratory Work and Assignments	20%	Laboratory Work and Assignments	20%
Examination	10%		

Absences

If you are absent for a test or laboratory activity, you must arrange a time outside of class time to complete the test or activity.

Extra Help

I will be available for extra help every morning at 08:00 and at lunch. I may also be available to help during your spare, but this would have to be arranged in advance. It is your responsibility to seek help when you need it!

Topics

PH32AP (Semester 1)	PH42AP (Semester 2)
Unit 1: Kinematics	Unit 5: Momentum
Unit 2: Dynamics	Unit 6: Simple Harmonic Motion
Unit 3: Circular Motion and Gravitation	Unit 7: Torque and Rotational Motion
Unit 4: Energy	