AP Physics 1 Syllabus

Andover High School
Anoka-Hennepin School District

Instructor: **Dr. Mansergh**
Phone: 763-506-8400
Email: gary.mansergh@anoka.k12.mn.us
Website: https://sites.google.com/site/drmanserghclassroom/home

Instructional Hours:
Full year, three trimester course
Class duration is 55-68 minutes

Course Description:
AP® Physics 1 is an algebra based general physics course that meets daily for a full year. Each class period is generally 68 minutes (twice a week we meet for 55 minutes). The course is designed to prepare students for the AP® Physics 1 test given by the College Board and should generally be comparable to a first year college course in mechanics with a few additional topics (Waves, sound, Electrostatics and DC circuits.)

The course is designed around 6 "Big Ideas" of physics detailed below. These big ideas are stressed throughout the course and are intended to encompass core scientific principles, theories and the practice of science. Non-numerical problem solving is developed and fine tuned throughout the year as students progress in their problem solving abilities. Students will have a variety of opportunities to show mastery of each learning target including paper pencil tests, formative assessments, summative assessments, laboratory experiences and real world problem solving.

Instructional Materials
Text: The main text provided to the students is AP Edition of College Physics by Serway and Vuille, 2018.

Big Ideas for AP Physics 1

- Big Idea 1: Objects and systems have properties such as mass and charge. Systems may have internal structure.
- Big Idea 2: Fields existing in space can be used to explain interactions.
- Big Idea 3: The interactions of an object with other objects can be described by forces.
- Big Idea 4: Interactions between systems can result in changes in those systems.
- Big Idea 5: Changes that occur as a result of interactions are constrained by conservation laws.
- Big Idea 6: Waves can transfer energy and momentum from one location to another without the permanent transfer of mass and serve as a mathematical model for the description of other phenomena.

Topic Areas of Study by Trimester: When Topics are covered may be adjusted.
Tri A – Motion (One and Two Dimensions), Forces, Work and Power – Chapters 1 - 5
Tri B – Energy, Impulse/Momentum, and Rotational Kinematics and Dynamics–Chapters 5–8, 13
Tri C – Vibrations and Waves, Sound, Electrostatics, and DC Circuits – Chapters 13-15, 17, 18

Grading Scale and Requirements:

A 100-93%	B- 82.9-80%	
A- 92.9-90%	C+ 79.9-77%	D 64.5-60%
B+ 89.9-87%	C 76.9-70%	
B 86.9-83%	C- 69.9-65%	F 59.9–0%

The breakdown of grading requirements per trimester is as follows:

Formal Investigations Reports: 20%
Lab notebooks will be the primary method of assessment for lab activities.
These notebooks will be collected periodically.

Essential WebAssign Work: 5%
WebAssign's essential work is important to student learning.
These assignments need to be don in the time frame given.

Unit Exams/AP Practice Exams: 60%
Unit exams will be used to assess the achievement of objectives
for each of the major topics covered.

Final Exams: 15%
The district AP Physics exam will be taken at the end of each trimester.

Formative Work and Quizzes: 0%
Textbook and online problems will be given at the beginning of each chapter to provide
practice and clarification of concepts reviewed in class and in lab work.
No points are given for these.

(Grades will be updated every two weeks on A-H Connect website.)

Formative work: Completing problem sets, online learning, reinforcing classroom activities, and quizzes are an essential part to learning physics concepts. By putting your best effort in the formative work and participating in classroom discussion, students will be able to learn physics concepts with a deep understanding that can be applied in life situations. This work will be collected but not be recorded in the online grade book (Except for the WebAssign Essential Assignments, when account for 5% of the grade).

Late/missing work: WebAssign essential assignments need to be done prior the scheduled unit exam (no late assignments accepted). All other late/missing assignments and assessments should be turned in by the end of the following unit. There will be a 10% late charge for Formal Reports. If more than one Formal Report is late at a given time, there will be an additional 10% late charge for each report. Under special circumstances, late/missing work can be turned in beyond the deadline but must be approved by instructor prior to the deadline.

Relearning/Reassessing Learning: Students will have an opportunity to relearn and to show their progress throughout the course. Students who have turned in all their formative work prior to the summative assessment for the first two units will be eligible to retake an equivalent assessment. Students who are eligible for the retake will be required to review concepts through a relearning activity, within one week after the original exam, before taking the retake exam. After the first two units, students will have the opportunity to show their relearning on the Final Exam at the end of the trimester. In addition, this course is scaffold, and concept previously learned will be reinforced throughout the course.

Course Objectives: There are general academic objectives for this course:

1. Provide the students with a thorough understanding of all concepts covered in the first semester of college level algebra-based physics.
2. Inundate students with laboratory experiences (required by College Board) that solidify the conceptual content covered in the first semester of college level algebra-based physics.
3. Prepare students for success (score of 3, 4 or 5) on the College Board AP Physics 1 exam.
4. Help students transition from a high school learner into a successful college learner.

Academic Expectations:

Attendance: Due to the rigorous nature of this course, daily attendance is essential to success. Students are expected to arrive on time, take a seat and immediately be on task upon the commencement of the class period. Any learning missed by being absent is the responsibility of the student to learn on their own.

Study Time: Students in this course are expected to take on the course load associated with a college level physics class. Under this assumption, **students will need to dedicate a half-hour to an hour and a half per night** to review class notes, complete lab work and execute homework assignments.

Participation: Conducive to any academic setting, engagement throughout the duration of the allotted class time will be necessary on behalf of the student to ensure digestion of the course content. Several teaching strategies will be used throughout the period consisting of interactive lectures, demonstrations, group work, lab work and cooperative learning. Students are to come equipped to class with not only the necessary physical tools of learning (i.e. notebook, lab notebook, writing utensil, graphing calculator, etc.) but also with a **mind-on attitude toward learning**. Students should engage in activities by using questioning skills and taking notes when necessary. **Cell phone use is prohibited in this class during class time.**

Peer Work: Students are expected to work with their peers to accomplish several of the objectives of this course. **Working with others is encouraged regarding homework assignments and forming study groups for exams is highly recommended.** Recognizing the necessity of peer work, it should be made clear that there is no tolerance for copying the work of others or any form of plagiarism (see academic integrity code).

AP Exam: As this is an AP course, **students are encouraged (but not required) to enroll in the AP Physics 1 exam** in May. This exam will serve as the climax of the class and will be utilized to measure the success of the students in understanding the course content. Students that have had Calculus AB are welcome to take the AP Physics C exam, which may colleges accept.

Behavioral Expectations:

On Task Behavior: Due to the rigorous nature of this course students must consistently stay engaged in the material. Any off-task behavior will diminish learning. **Cell phones and other distractive electronics are prohibited.** *Current research shows that cell phones are one of the biggest distractions in high schools, and hinders student learning.*

Respect for Others: The classroom is a place of mutual respect for all persons within it. Individuals should be addressed with courtesy at all times. Disrespect and/or negative behaviors toward others will be dealt with in accordance with the discipline policy at Andover High School.

Chronic Issues: Students who struggle chronically with the behavioral expectations will be referred to the administrator.

Academic Integrity Code: Andover High School students are bound by a code of academic integrity. Academic integrity requires a commitment to five fundamental values: honesty, trust, fairness, respect, and responsibility. The following behaviors violate the principles of academic integrity and are thus prohibited. These behaviors include: plagiarism; cheating; duplication of submission of the same work; collusion; false information and lying; falsifying academic documentation and forgery; theft, abuse, and destruction of academic property; unauthorized use of information technologies; and aiding and abetting academic dishonesty. Any breach of the Academic Integrity Code will follow Andover High School's Integrity Policy.