Northview High School **NHS Main Office - 470-254-3828**

Course Syllabus - Advanced Placement Physics 1, 2016 – 2017 School Year

Text: *Physics*, 3rd edition. Walker. $109

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Course Description:
Advanced Placement Physics 1 is designed to introduce students to a range of topics in physics as well as prepare the student for the advanced placement examination. The AP Physics 1 exam will be Tuesday afternoon, May 2, 2017. The advanced placement examination provides students with the opportunity to earn college credit for a course taken in high school. The AP Physics 1 course covers a variety of topics but primarily focuses on Newtonian mechanics including kinematics, forces, work/energy/power, momentum, rotational motion, mechanical waves/sound and introductory circuits. In addition, I plan to include additional units that will provide exposure specifically to electricity and magnetism, as well as other interesting topics if time allows.

Student Expectations:
Due to the in-depth nature and pace of this course, along with the necessity to review and prepare for the AP exam, students should understand the need to spend time outside of regular school hours preparing for the AP exam. In addition, since students can receive college credit for this course, students will be expected to perform significant work outside of class, as would be expected of college students. Students are expected to bring a scientific (~15$) or graphing calculator on a daily basis. It is also required that students carry a flash drive to save information from labs to take home. Internet access is not always available during class so a personal drive is required.

Behavior and Classroom Rules:
You are a young adult and responsible for yourself and your behavior. You are expected to act with respect toward anyone or anything with which you are involved. This includes but is not limited to your fellow students, teachers, other school personnel, classroom furniture, laboratory equipment and school property. Acting in such a manner will insure an enjoyable and productive classroom environment that can benefit all at Northview High School.

No food or drinks are to be consumed in the classroom with the exception of water, which should be in a container with a sealable top. The use of cell phones in the classroom is prohibited unless you are instructed to do so by the teacher or have clearly asked for permission from the teacher. Cell phones that are visible during class time without teacher permission will result in a disciplinary action that may include detention or office referral (in the case of multiple infractions).

Communication:
My email address is at the top of the syllabus, as well as the school phone number, to facilitate parental communication. Please utilize email to make your initial contact as we do not have phones in the classroom. Home Access Center (HAC) is an internet tool that can be used to access student grades. Please remember that grades will be entered upon completion of grading, which can take several days depending upon the nature of the assignment. HAC can be accessed via the link provided on the Northview High School website.

Office Hours:
I am available most mornings to answer questions from students. I do ask that students let me know ahead of time that they are stopping by to insure that I do not have a conflict. I can also meet with students after school by appointment. If you would like to schedule a parent-teacher meeting, please contact me via email.

NORTHVIEW TITANS

Fall Semester Objectives (test dates are tentative and subject to change due to pacing adjustments as well as school related activities, such as assemblies and field trips that affect instructional time)**:**

Students should expect unit tests to be cumulative.

Unit 1: Introduction to Physics and One-Dimensional Motion (Chapters 1, 2; 2 weeks)
Algebra/Trigonometry review (summer assignment), measurement, graphing, vectors and one dimensional motion (Test 8/22/16)
Unit 2: Forces, including one and two dimensions; centripetal forces (Chapters 3, 5 and 6; 3 weeks)
Newton's Laws of Motion, Free-Body Diagrams, Types of Forces (Test 9/13/16)
Unit 3: Two-dimensional Kinematics (Chapter 4; 2.0 weeks)
Two-dimensional vectors, motion and projectiles (Test 9/27/16)
Unit 4: Work-Energy (Chapters 7 and 8; 2.5 weeks)
Work, Energy, Power, Conservation of Energy (Test 10/13/16)
Unit 5: Linear Momentum (Chapter 9; 2.0 weeks)
Momentum, Conservation of Momentum, Collisions (Test 10/27/16)
Unit 6: Rotational Kinematics and Energy (Ch 10; 2.5 weeks)
Angular quantities, Rolling Motion, Moment of Inertia (Test 11/15/16)
Unit 7: Torque, Rotational Dynamics, Angular Momentum (Ch 11; 3 weeks)
Angular acceleration, Conservation of Angular Momentum (Test 12/15/16)

Spring Semester Objectives:

Unit 8: Gravity and Orbital Motion (Ch 12; 2 weeks)
Newton's Law of Universal Gravitation, Orbital Motion, Kepler's Laws (Test 1/24/17)
Unit 9: Oscillations; Waves and Sound (Chapters 13 and 14; 2.5 weeks)
Simple Harmonic Motion, Doppler Effect, Standing Waves (Test 2/10/17)
Unit 10: Electric Charges, Forces and Electric Fields; Electric Potential and Energy (Chapters 19 and 20; 2.5 weeks)
(Test 2/28/17)
Unit 11: Electric Circuits (Chapter 21; 2 weeks)
Series, Parallel and Combination Circuits; Kirchoff's Rules (Test 3/16/17)
Unit 12: Magnetism, Magnetic Flux and Faraday's Law (Chapters 22 and 23; 2 weeks)
Magnetic Fields, Lenz's Law, Electric Motors (Test 3/30/17)
Unit 13: Electromagnetic Waves; Reflection and Refraction of Light (Chapters 25 and 26; 1 week)
Electromagnetic spectrum, Mirrors and Lenses (Test 4/14/17)

Additional units may be added if time allows. Units dealing in electromagnetism may be reduced in order to provide sufficient review for the AP exam. Students will be required to take a practice AP Exam that will serve as their final exam grade for the course. This will be administered prior to the actual AP Exam.

The learning objectives for this course, as determined by College Board, and additional resources can be found at: http://apcentral.collegeboard.com/apc/public/courses/teachers_corner/2262.html . Be sure to look at those objectives denoted for AP Physics 1 only.

Grading:		
	Tests – includes unit tests and any projects	45%
	Quizzes – includes lab assignments and quizzes	30%
	Homework – WebAssign, other graded work	10%
	*Final Exam	15%

*Note: The final exam percentage is subject to change based on Fulton County Board of Education policy revisions.

An integral part of a physics program should be the design and construction of projects that incorporate principles of the course. During the first semester, there will be a mouse-trap car competition if time allows. During the second semester, electric motor boats will be constructed for racing! Each of these projects will be done in 2-person teams to help with costs.

Class Notebooks should be maintained and should include class notes, class work and any other items relevant to AP Physics 1. WebAssign homework problems are to be done in a composition notebook and all students should be able to show their work for WebAssign if asked. Students should be able to, with notice, bring in their webassign notebook as evidence of the quality of work they have done.

It is required that students have a USB/flash drive.

Students are also required to install LoggerPro on a home computer. LoggerPro is a data collection and analysis program that we will use in many of our laboratory exercises. A home copy will allow students to perform analysis of the data at home as well as produce graphs and other artifacts to include in their lab reports. The LoggerPro installation file can be found on the class's Edmodo.com site.

It is suggested that you have a lab notebook to document your lab activities.

We will also use an online homework service (WebAssign) that will cost approximately $10.50/student. This fee will be paid directly by the user once they register for WebAssign at https://webassign.com/ . I have found this to be a very effective means of assigning homework and allowing the students to have some degree of flexibility with their schedules. WebAssign problems should be completed in a neat and orderly manner all within the same notebook. I will conduct homework checks to verify that students are showing the necessary work for these problems.

Honor Code:
Cheating has been defined as giving or receiving, in any form, information relating to a gradable experience including the use of sources of information other than those specifically approved by the teacher, either during or outside of class. I will strictly enforce the honor code policy as described in your student handbook. Violations of the honor code will result in a zero for the assignment and an honor code violation form placed in the student's disciplinary file. *Read the student handbook* (www.northviewhigh.com) *carefully to fully understand what constitutes an honor code violation.*

Late Work Policy:
Much of the daily homework is handled through Webassign. Typically, several days are given to complete assignments, so it is unlikely that a student should turn it in late. It is the student's responsibility to complete and submit their work online by the due date and time. Late work will not be accepted for Webassign due to the extended nature of the assignment. If other late work (labs, projects) is accepted, it will receive a penalty.

Grading Scale:
A = 90 and above
B = 80 – 89
C = 70 – 79
F = 69 and below

Make-Up Work Policy:
Please reference the Northview High School Student/Parent Handbook for 2016-2017.

Northview High School Tardy Policy:
Please reference the Northview High School Student/Parent Handbook for 2016-2017. This policy will be strictly enforced. It is summarized as follows:

The first and second tardy to any class for the semester will receive a written reprimand. Repeated tardiness to the same class will result in assignment of the following consequences:

- First Tardy…….Verbal Warning and Restatement of Expection
- Second Tardy…….One Day Private Detention with Teacher
- Third Tardy……Referral to Administrator and Two Days Public Detention
- Fourth and Subsequent Tardies..……Referral to Administrator and One Day Saturday Opportunity School

The tardy cycle will be based upon the six-week grading periods.

Northview High School Recovery Policy:
Please reference the Northview High School Student/Parent Handbook for 2016-2017. This policy will be strictly enforced. It is summarized as follows:

1. Recovery is for students who, despite a conscientious effort and communication with their teachers, have failed to demonstrate satisfactory understanding of course standards. It is not for the student who has been failing for many weeks and then wishes to recover during the final days of the course. Opportunities for students to recover from a 74 or below *cumulative* average will be provided when ***all*** work required to date has been completed and the student has demonstrated a legitimate effort to meet all course requirements. *Students who have not attempted to complete all course requirements are not eligible for recovery.*
2. Students may initiate recovery on major assessments starting with the second major assessment of the semester as long as they have made a legitimate effort to meet all course requirements including attendance. Unexcused absences may prevent this opportunity.
3. So that students stay focused on the content at hand and don't become overwhelmed and fall too far behind, they must initiate recovery on a major assessment within five school days of being informed of the grade on the assessment that caused their overall average to drop below a 74. Recovery work must be completed within ten school days prior to the end of the semester. The nature and type of recovery assignment is given at the discretion of the teacher.