

AP Physics Syllabus

Burke High School 2008-2009

Instructor: Mr. Philip Manley

Text: *College Physics* by Wilson and Buffa

About Physics

Physics is an important subject for all students to study, especially those considering attending college, or those who will pursue a technical trade. By studying physics one develops critical thinking skills and problem solving strategies that apply in many situations. It is not just a class for science minds. But it is the fundamental science. All other natural sciences come back to physics because almost every process can be explained in terms of electric and nuclear forces.

Topics

AP Physics B is broken into five major content areas. They are:

1. Newtonian Mechanics
2. Fluid Mechanics and Thermal Physics
3. Electricity and Magnetism
4. Waves and Optics
5. Atomic and Nuclear Physics

Each of these five areas is broken into more specific topics. These can be seen in the **course guide** along with the percentage goals for the AP exam.

Note: The evolution of earth may be discussed.

Materials

- pencil
- straight edge
- calculator
- binder with loose leaf paper
- LAB NOTEBOOK - this is a must. You will be keeping a full record of all labs and they must be contained in a single notebook. Specifics about the style of notebook will be provided.

Grading

Grades are calculated on a point system by taking the points earned divided by the points possible. The district wide grading scale will be used. Because AP courses are weighted, it is common that students earn a letter grade lower than they are accustomed to. Just as if you were taking physics at a University, the standard grading categories are listed below. Each category represents roughly half of the grade.

- Tests and Quizzes
- Labs

About AP Physics

AP Physics has a reputation as one of the most difficult courses offered in high school. It will be a very challenging course, but there are a number of reasons I am confident you will succeed. Below are a few thoughts and tips.

- You are here for a reason: you are one of the best students in school, interested in sciences for a career, trying to earn credit
- You will most likely receive more one-on-one attention this year than you ever will in a true college course
- You will be in class many more hours than you would be in a normal college physics course
- Therefore, you will learn more about physics and understand it better than most true freshmen and sophomores in college
- You are just as prepared (smart) now as you will be during your freshman year in college—you are ready for this challenge
- Take the AP test—you will be well prepared
- Passing grades in AP are very different than what you are used to in K-12 schools
- AP physics will prepare you for college

Mr. Manley's Schedule

Period	Room
0	242
1	242 honors physics
2	242 honors physics
3	242 AP physics
4	242 AP physics
5	245 Plan
6	245 Plan
7	242 honors physics
8	242 honors physics
9	242

Policies

click here for class policies

AP Physics Class Policies

All school policies stated in the student handbook apply. A few are highlighted below:

- **Attendance and makeup work:** See student handbook
- **Tardiness:** See student handbook
- **Leaving the room :** At times it is necessary to leave the room. You may be permitted to leave the room provided you wait for an opportune moment that is not disruptive or causes you to miss key instruction, and you do not abuse the privilege by becoming a “hall junkie.”
- **Cell phones:** see below
- **Headphones:** same as cell phone policy
- **Food and Drink:** food and drink are not allowed in science classrooms.
- **Being on task:** Students are to be working on physics, and only on physics while in the physics room, and for the entire time spent in the room. Packing up early and lining up by the door will not be allowed.
- **Maturing into a well-rounded human being:** Truly this is the most important part of your high school career. One could live successfully in the world without an understanding of physics (although this would be very unfortunate). But becoming well-rounded, a person of integrity, with good character is of utmost importance. Therefore, students in this classroom are expected to be courteous, kind, helpful, friendly, obedient, trustworthy, cheerful, respectful, diligent, on task and much more...

If you have trouble meeting any of the above expectations I will remind you. If you still have trouble, your parents may receive a phone call or you might receive a detention.

Mr. Manley’s Cell Phone Policy

The rule of phones is like the rule of the road. If you drive too fast, you get a ticket. If you run a stop sign, you get a ticket. Even if you did not know you were breaking the law, you get a ticket. The cell phone law in the physics room is established. All students are aware from this point forward and will be held accountable for their actions. If you make a cell phone offense, expect to get a “ticket.”

What is a Cell Phone Offense?

- Talking on your cell phone
- Texting on your cell phone
- Playing games on your cell phone
- Texting on your cell phone under the table or in your pocket
- Having your cell phone anywhere in sight, even at the end of class!

What is the penalty for committing a cell phone offense? For ANY offense, your phone will be turned over to Mr. Manley immediately, without any question, or discussion, or excuse etc... You may return to the physics room after 8th period to pick it up. It will be turned over to you after you have served a 15 minute detention.

Students who refuse to turn over the phone without discussion, or question, or excuse, or argument will be dealt with alternatively with the help of administration.

Lab Policies

- Final draft is always **due ONE week from start** .
- Labs are recorded in a lab notebook
- Labs are graded according to the **rubric**. Labs are worth either 15 points or 25 points.

Bonus Policy

This is not your typical bonus opportunity. The extra credit policy in this class is unique. Read below to see how you can add a little cushion to your grade.

Make up your own experiment. Have it approved by your teacher. It can be as simple or complex as you want. It can be related to the current topic, or not. It can deal with physics, or not. Come in before or after school, or during a free period(s) to conduct the experiment. (Please let me know when you will come). Notify your teacher if there is any special equipment you will need. You may work individually, or with one partner. (both partners must contribute equally). Write a report that is appropriate for the experiment (mini-experiments can have mini-reports and complex experiments should have complex reports). Follow the same report format used in class.

You may earn extra credit (up to a reasonable limit) that reflects the effort you put forth in your experiment. Mini experiments will earn mini points, and big experiments *can* earn big points. See you after school!

Tips for Success

- Be present in class everyday
- Read the text
- Work homework problems regularly. Do not put them off to the day before they are due!! Usually about 2 or 3 problems per night are recommended.
- Taking physics can be compared with eating a cake (it's awesome). In the class sessions you get to taste the frosting. But the cake, or the substance, is found in the text and in the homework problems and assignments. Successful students take the class sessions seriously, but also work very hard at home.

- Find a study-group that will help you succeed. The same goes for your lab group.
- Do not memorize!! Use your brain to analyze, apply, comprehend, understand, compare, contrast, hypothesize, estimate, conclude and more...
- Maintain a positive attitude.
- Success = Ability x Preparation x Effort x Will (Coach Rick McGuire, University of Missouri)

Help with Solving Physics Problems: The GUESS method

G	Givens	Make a list of all given information. Include symbols and units	Also include a labeled diagram when you set up the problem
U	Unknowns	Make a similar list of unknown information.	
E	Equations	Determine which equation(s) you might use to solve the problem	
S	Solve	Rearrange equations, input the numbers, do the number crunching...	
S	Solution	Circle your final answer(s) with the correct units and the correct significant figures (decimal places).	

Top 10 Factors to a Good Education

As a student, what do you believe are the 10 most important factors of a good education? This question will help us determine together what is necessary for success in physics.

Consider these things:

What are the responsibilities of the school or school district, the teachers, the student, or the parents?

How much homework is needed for sound learning?

Do you receive an education, or do you earn an education?

Is education in the United States free?