

AP Physics

Ms. Carlson
Rm. 326
2013-2014



“Science is a way of thinking much more than it is a body of knowledge.” ~ Carl Sagan

Course Description

AP Physics B is an algebra-based physics course. It includes both classical and modern physics. We will study the five following areas: Newtonian Mechanics, Fluid Mechanics and Thermal Physics, Electricity and Magnetism, Waves and Optics, and Atomic and Nuclear Physics.

Students will have the opportunity to perform many hands-on labs in the classroom. Most of the labs will present a question or a problem and then students will design and perform their own lab procedure.

Students will also have the opportunity to participate in The University

of Utah concurrent lab course Physics 2015. They will earn college lab credit by participating in these labs.

In May, students will take the AP Physics B test. The test is 3 hours long—divided between a multiple-choice section and a free-response section. There are 70 multiple-choice questions and 6-7 free-response questions. The test is designed to evaluate the breadth of learning and a student’s understanding of fundamental physics concepts. Because the exam covers a wide range of topics, some students

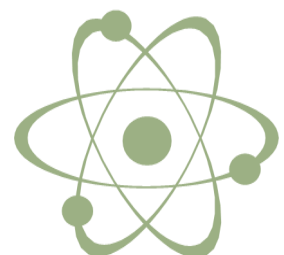
all over the nation find it more difficult than classroom tests. Because of this we here at Brighton will get lots of practice with released exams before The Big Day. We want our students to feel comfortable and prepared for the exam.

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Course Details

Class Website <http://scarlsonphysics.weebly.com>
E-mail sarah.carlson@canyonsdistrict.org
Availability Before School: Mon, Wed, Thurs
After School: Every day until 3pm



How to Take This Course

This classroom is a Flipped Classroom. What this means is that students will view videos of lecture material before class on their own and at their own pace, coming prepared for class the next day. Classtime is now spent on working together to develop understanding of concepts and problem-solving skills. This method works excellently for this course because now there is much more support for students learning about Physics. Students will work one-on-one with me, in pairs, in small groups, and as a whole class. Class is much more engaging and learning is much more active.

What this requires of students is that they come prepared for class: they've watched the video lesson and have taken notes. In addition, I recommend students write down any questions they may have about the material to help them remember to ask them in class. Videos for the unit will be available ahead of time and students are free to jump ahead – *but don't fall behind!*

Class Policies and Procedures

Attendance

There is no substitute for attending class. There is so much going on in this course that a day missed can be a big setback. Therefore, please attend class every day unless there is a family emergency or you are ill. Remember, as per Brighton High School's attendance policy, failure to attend class may result in a loss of credit for this course.

Make-Up Work

When absent, students should assume that learning and work continue in the classroom. In the event of an absence (planned or otherwise) student must:

Stay up to date with video lessons.

Check with me for any missed classwork. Students may have an extra day to complete classwork for each day absent.

If a student misses an assessment, the student should speak with me to schedule a time to complete the missed assessment. **It will be the student's responsibility to initiate make-up assessments within one week of student's return to school; otherwise, the student forfeits the opportunity to assess.**

Important Logins

Canvas

Username: firstinitialfirst3lettersoflastname
last4numbersofstudent#

Password: student #

WebAssign

Username: lastnamefirstname
Institution: bhs.ut

Password: student #

Protect yourself! Change your passwords

Materials To Bring To

Class Every Day:

* Lesson notes (a binder is recommended but a notebook is fine)

- * Textbook
- * Calculator (scientific is fine, graphing is best)
- * Pencils/pens
- * Lab notebook (a composition notebook)
- * Ear buds/headphones

Classroom Behavior (a.k.a. class rules)

The rules are simple:

- 1) Be Prepared.
- 2) Be Present.
- 3) Be Respectful.
- 4) Be Honest.

Reassessments

Each standard will be assessed multiple times (quizzes, labs, and tests), so asking to reassess may not necessarily be needed as the standard will be assessed again in the future. Students will be told when standards will be assessed for the last time (usually during a test).

However, if a student would like the chance to reassess a particular standard or a selection of standards, then I am more than happy to help in that regard. To help facilitate the process (and to help keep me organized), the student must submit an Application to Reassess which can be picked up from me or printed from the class website. Reassessments will be done either before or after school on Thursdays, and, since reassessments are written individually for students, applications must be submitted by the end of the day on Tuesdays to allow me time to write the reassessment.

Reassessments are not guaranteed – students must be able to articulate what they didn't understand before and what they have done to study the standard to ensure they understand it fully now. Students will be informed of an application's acceptance or rejection the next day. If rejected, more guidance will be given. If accepted, reassessment date will be confirmed and scheduled.

Grading

Grading in this course will be based on your mastery of learning standards. Learning standards will be assessed multiple times and the trimester grade will be determined by the percentage of standards mastered by the end of the grading term. When a standard is assessed (quiz, test, lab), the student will receive a score of 0, 1, 2, 3, or 4:

4=Advanced Mastery 3=Mastery 2=Partial Mastery 1=Minimal Mastery 0=No Mastery

When determining a letter grade, I will only look at the most recent scores for the standards. So if a student's performance changes over time, the score that will count will be the last one. Look at the table below to get a better idea.

Standard	Assessment 1	Assessment 2	Assessment 3	Assessment 4	End of Grading Period Score
2-3.1	1	2	3	3	3

Since Skyward is a points-based grade reporting system, this 4 point scale will be converted to the following when reporting progress on Skyward: 4 = 10 pts 3 = 8 pts 2 = 6 pts 1 = 4 pts 0 = 0 pts

Students may apply for reassessments on standards if they would like. Reassessments will be done either before or after school and must be initiated by the student. To help facilitate requests for reassessments, students must submit a "Reassessment Application". See more under "Reassessments" for further details.

To keep track of your progress with the standards, look under "Outcomes" on Canvas. Periodically, progress reports will be given to students to take home to parents.

Final Grade—Determined by Mastery of Standards				
A 95-100%	B+ 87-89%	C+ 77-79%	D+ 67-69%	F 0-59%
A- 90-94%	B 83-86%	C 73-76%	D 63-66%	
	B- 80-82%	C- 70-72%	D- 60-62%	

Learning Standards

The learning standards come from College Board (the organization that oversees all Advanced Placement courses) as well as a few additional ones that I've added that are necessary for students to master in order to be successful, not only in this class, but in future classes and in the workplace.

The standards are organized by Major Concept (Unit), Lab Skills, and Basic Student Skills. The lab skills and basic student skills will be assessed several times throughout the year, at least once during each unit.

To find the complete list of learning standards, please visit the class website, look under "Outcomes" on Canvas, or ask for a copy from Ms. Carlson. Below are the general topics of study:

I. Newtonian Mechanics

- A. Kinematics
- B. Newton's Laws of Motion
- C. Work, Energy, Power
- D. Systems of Particles, Linear Momentum
- E. Circular Motion
- F. Oscillations and Gravitation

II. Fluid Mechanics and Thermal Physics

- A. Fluid Mechanics
- B. Temperature and Heat
- C. Kinetic Theory and Thermodynamics

III. Electricity and Magnetism

- A. Electrostatics
- B. Conductors, Capacitors, Dielectrics
- C. Electric Circuits
- D. Magnetic Fields
- E. Electromagnetism

IV. Waves and Optics

- A. Wave Motion
- B. Physical Optics
- C. Geometric Optics

V. Atomic and Nuclear Physics

- A. Atomic Physics and Quantum Effects
- B. Nuclear Physics

Lab Fee!

There is a \$20 lab fee that must be paid to the front office. Students must bring the receipt to me as proof of payment. This fee covers consumable lab materials as well as WebAssign access.