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| **AP Physics 1 Course Syllabus**  **School Year 2020-2021**  Teacher: **Hazel Yater**  Room #: **X108**  E-mail address: hazel.yater@fortbendisd.com  Phone #: 409-242-0806  Conference Period: 4th Period  Tutorials: 2:30 – 4:00 pm Thursday or by appointment (Online) | Image result for thurgood marshall high school logo |

**Course Overview**

The AP Physics 1 course covers Newtonian mechanics (including rotational dynamics and angular momentum); work, energy, and power; mechanical waves and sound. It will also introduce electric circuits and modern physics. Knowledge of algebra is required. The course is organized around six broad “Big Ideas.” During this year, you will learn how to apply seven “Science Practices.” These Science Practices are about developing skills in modeling, working with data, calculating, thinking, and reasoning. At many colleges this is a semester course including laboratory component, which often provides a foundation in physics for student in life sciences, pre-medicine, and some applied sciences, as well as other fields not related to science. This course does not require evening lab time. The focus of this course is preparation for successful completion of the AP Physics I exam in May.

**Primary Textbook:** Knight, Randall Dewey, Brian Jones, and Stuart Field. 2015. College Physics: A Strategic Approach. 3rd Ed. Pearson: Boston MA. ISBN: 9780133539677 Adoption Period: 2014-2022

**Digital Learning System/Online Textbook:** Schoology, AP Classroom and Mastering Physics

**Websites:** Fortbendisd.com; https://fortbendisd.schoology.com

APcentral.collegeboard.com; https://phet.colorado.edu/en/simulations/category/new; [www.edx.org](http://www.edx.org)

Pearson.com; <https://www.pearsonmylabandmastering.com/northamerica/masteringphysics/>

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| **Science Practices**  1. The student can use representations and models to communicate scientific phenomena and solve scientific problems.  2. The student can use mathematics appropriately.  3. The student can engage in scientific questioning to extend thinking or to guide investigations within the context of the AP® course.  4. The student can plan and implement data collection strategies appropriate to a particular scientific question.  5. The student can perform data analysis and evaluation of evidence.  6. The student can work with scientific explanations and theories.  7. The student is able to connect and relate knowledge across various scales, concepts, and representations in and across domains. | **Big Ideas**  1. Objects and systems have properties such as mass and charge. Systems may have internal structure.  2. Fields existing in space can be used to explain interactions.  3. The interactions of an object with other objects can be described by forces.  4. Interactions between systems can result in changes in those systems.  5. Changes that occur as a result of interactions are constrained by conservation laws.  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. |

**Course Outline**

Course content outline relates to the chapters in the College Physics textbook.

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| **First Semester**  Unit 1 – Kinematics  Unit 2 – Dynamics  Unit 3 - Circular Motion and Gravitation  Unit 4 - Energy | **Second Semester**  Unit 5 - Momentum  Unit 6 – Simple Harmonic Motion  Unit 7 – Torque and Rotational Dynamics  Unit 8 – Electric Charge and Electric Force  Unit 9 – DC Circuits  Unit 10 - Mechanical Waves and Sound  Unit 11 - Summative Project |

**Required Websites**

**Students must join these to join live classes and access class materials. You will be required to use your district email address and password.**

[**Microsoft Teams**](#_top)

Download Microsoft Teams app on your device and enable Microsoft Teams notifications. To join live classes, use the access code below

1st Period 0rsfahx     2nd Period q5eoyno

**Schoology**

To access course content materials and OneNote class notebook use the access code below

1st Period 5KWK-TW5H-KTF6T     2nd Period FRBT-MMBQ-W65SZ

[**Mastering Physics**](http://www.masteringphysics.com)

To access problem assignments [**www. Masteringphysics.com**](https://www.masteringphysics.com/site/login.html)

[**AP Classroom**](https://apcentral.collegeboard.org/)

To access problem assignments and practice test <https://apcentral.collegeboard.org/>. Use the access code below

1st Period KA6XRK     2nd Period PY6GRJ

**Digital Notebook on OneNote**

Students are required to use a digital notebook on OneNote in their schoology platform. It’s paperless and students can work directly in the file anywhere to record information and questions that demonstrate their understanding of physics concepts including the raw data for completed lab reports. This digital notebook will be graded every three weeks.

**Lab and Classwork**

Students will spend at least 25% of class time in hands-on laboratory investigations. Labs can be either teacher directed or student directed/open-ended. During a teacher-directed lab, the students are given instruction on the operation of lab equipment and guidance in the process of the experiment. Student-directed or open inquiry labs are when the students are given an objective, e.g. “Determine the acceleration due to gravity on Earth,” and standard materials needed to conduct a lab. Students are allowed to create their own experimental design and collect data, which can be analyzed through graphical methods. These inquiry-based investigations or student-directed labs have an extra element that is added to some lab reports. After these labs, each student group will present their results to the class and defend their results. They will also evaluate one other group's approach to the problem and offer a critique of their procedures and results.

Students work in lab groups, but each student must record raw data in their lab workbook. Once a semester each student will submit a formal lab report. The report must include the following components:

• Title

• Background

* Objective

• Discussion or outline of how the procedure will be carried out

• Data collected from the experiment

• Data analysis

• Conclusion including error analysis, and extension/outside application

Throughout the course, students are required to engage in a variety of activities and projects that will enable them to connect the concepts learned in class to real world applications. Projects count the same as test and are done in class or outside the class period.

**Homework**

Students should expect 2-3 homework a week. Students will work through a combination of chapter questions from the online homework system Mastering Physics of Pearson, as well as teacher assigned practice problems and practice exams from the AP College Board that are similar to previous multiple choice and free-response questions. During each unit, the problems assigned are mostly specific to the unit topic but may also include review problems.

**Tutoring**

Extra tutoring is available to students struggling with concepts presented in this class. It is the student’s responsibility to come get the help that they need. A schedule of my availability will be posted but students must contact me in advance to make sure that I am available for a specific afternoon. **Tutorial** **time online every Thursday from 2:30 p.m. – 4:00 p.m. or by appointment.** Anyone who need extra help, must let me know as soon as possible.

**Warm Up/Bellringer**

Everyday there will be a warmup assignment on the board/screen. Students are expected to begin working on this assignment and will be given three (3) minutes after the tardy bell to finish the warmup before class discussion. If absent, student should see or inform the teacher via email for any missed work.

**Assessment**

Students will take a paper-based or computer-based test every nine weeks. Approximately two units are covered on each test. Each test consists of 20 multiple choice questions and 2 free response questions (both sections taken from old AP exams). The test is timed and the students have 40 minutes to complete it. They also take free response and multiple-choice quizzes throughout the unit. These have also been drawn from old AP questions. Comprehensive final exams (semester exam) will be given each semester. Tests can be retaken within three days of receiving a failing grade back, but the student must do so in tutorials. The teacher reserves the right to administer a different make-up test or exam. The maximum score that may be earned on a retest is 75 percent.

**Grading Scale**

Student’s grade will be determined on the following scale:

50% Daily Grades

50% Major Grades

General guidelines for report card letter grades are:

90 – 100 A

80 – 89 B

75 – 79 C

70 – 74 D

69 & Below F (not passing)

I Incomplete

NG No grade

There may be some limited extra credit opportunities offered throughout the year.

**Deadline and Absences**

Homework, classwork and projects should be turned in on the due date to receive full credit. Work turned in the next meeting day after the due date will receive 75 maximum credit. Students are responsible for any missed assignment due to absences (e.g. UIL trips) and to make it up within **three days** of return to class. Failure to meet the deadline may result in a lower grade. All labs missed must be completed after school within **one week** of the absence. The teacher reserves the right to give an alternate make-up work or assignment.

**Academic Integrity**

Teachers expects from its students a high level of responsibility and academic honesty. It is imperative that a student demonstrate a high standard of honor in his or her scholastic work. If a student is caught cheating or using his/her cellphone during a quiz/test/exam, the quiz/test/exam will be void and the student will face the consequences of academic dishonesty.

**Expectations**

Students are expected to:

1. *Be on time to class.*
2. *Be prepared with materials and assigned work.*
3. *Participate in class discussions and laboratory investigations.*
4. *Follow all laboratory procedures and safety rules/guidelines.*
5. *Put away personal electronic devices otherwise it will be confiscated according to school policy if used inappropriately (ex. gaming, social networking, messaging, email, recording, etc.)*

*6. While the teacher is actively teaching and the Chromebook is being used, all Chromebooks are to be placed flat on the student desk. Student Chromebook screens are always to be visible to the teacher.*

*7. Students are not allowed to record AT ANY TIME audio, photos, or videos of other students or staff without their explicit permission.*

*8. Treat themselves, their classmates, and the teachers with respect at all times.*

*9. Seek appropriate help or clarification when needed. Students are expected to demonstrate ownership of their learning and success in this class*

*10. Adhere to all guidelines, behaviors, and conditions as stated in the student handbook*

**Required Materials:**

Graphing calculator

Charged Chromebook

Graphing paper

Colored pencils

Pencils or pens

Ruler and protractor

Glue stick and scissor

**Hazel Yater**

*Physics Lead Teacher*

Thurgood Marshall High School

[hazel.yater@fortbendisd.com](mailto:hazel.yater@fortbendisd.com)

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August \_\_\_\_, 2020

**For the Student,**

I \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(print student’s name) have read the course syllabus and expectations for AP Physics 1 for the 2020-2021 school year. I fully recognize that I will be held accountable to these expectations and I understand the consequences for my actions.

I will send out reminders of due dates and upcoming tests/projects. If you would like to be on this list, please make sure you sign below. Thanks!

Student’s Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Student e-mail and cellphone # \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**For the Parent,**

I \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(print parent’s/guardian’s name), have reviewed the course syllabus with my son/daughter, and fully understand what is required in order for my son/daughter to pass the AP Physics 1 course.

Parent/Guardian Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Parent/Guardian e-mail and cellphone # \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_