**Syllabus – AP Physics 1, 1st Semester 2021-2022**

Teacher: Amy Jacob

Contact: amy.jacob@ucps.k12.nc.us

Office Hours: TBD

Physics is the study of the motion and behavior of matter. This semester we will be exploring both how and why things behave the way they do. AP Physics 1 is a fast-paced course that uses hands-on activities in which we will employ an in-depth and mathematical approach. One of the primary goals that I have for my students is to learn from these hands-on practical experiences as opposed to mindless memorization. Therefore, we will be doing a lot of practicing. Just like in sports, success relies on muscle memory, the same applies to physics which also depends on the muscle memory of the brain. Mathematical analysis is one form of repetition we will be using to build a strong physics foundation.

AP courses differ from honors courses in terms of the level of expectations placed on the students; the amount of independent work expected; the pace of coverage of content; the expected skill level; and the breadth and depth of the content covered. Therefore, considering the balance of coursework demands in relation to interest, ability, and extra-curricular activities, serious thought should be given as to what a student can handle without creating undue stress. AP courses are appropriate for fairly autonomous students who are self-motivated learners, and who are ready to move quickly from lower-order thinking (knowledge, comprehension) to more conceptual, higher-order thinking (application, analysis, synthesis). AP courses expect more work than honors courses and demand a stronger mastery of skills and more independent critical thinking. Often more assignments are given, which demands more self-discipline from the students to keep track of everything accordingly.

**Curriculum:**

*AP Physics 1 will follow the AP Physics 1 Course and Exam Description:* [*https://apcentral.collegeboard.org/pdf/ap-physics-1-course-and-exam-description.pdf*](https://apcentral.collegeboard.org/pdf/ap-physics-1-course-and-exam-description.pdf)

**Course Outline:**

|  |  |  |
| --- | --- | --- |
| **Unit** | **Estimated # of Lecture Days** | **Calendar Dates (Tentative)** |
| Introduction | 1 | 8.23.21 |
| Unit 1: Kinematics | 11 | 8.24.21-9.8.21 |
| Unit 2: Dynamics | 12 | 9.9.21-9.27.21 |
| Unit 3: Circular Motion and Gravitation | 6 | 9.28.21-10.5.21, Test on 10.19.21 |
| Unit 4: Energy  | 10 | 10.6.21-10.19.21 |
| Unit 5: Momentum | 9 | 10.20.21-11.2.21 |
| Unit 6: Simple Harmonic Motion | 8 | 11.3.21-11.15.21 |
| Unit 7: Torque and Rotational Motion | 11 | 11.16.21-12.3.21 |

**Homework:**

Homework will be assigned and turned in daily. Assignments to be graded will be selected randomly to be graded.

**Labs:**

* The information obtained from each lab will be used throughout the semester. We will be using lab information to formulate the basic understanding of the concepts in Physics and will build upon these with each topic. It is imperative that each student attend all labs. Please see me to sign up for a time to make up any missed labs. Because physics professors at some institutions ask to see a record of the laboratory work done by an AP student before making a decision about granting credit or placement in the physics program, students should keep a laboratory portfolio that includes reports of their laboratory work.

**Demonstrations:**

These are very important as they are to give the students another perspective to the theories and mathematical language of chemistry.

**Canvas:**

Power Points, notes, assignments, solutions, announcements, handouts, and worksheets can all be found on canvas. All assignments will be turned in on Canvas. Work will NOT be accepted on paper.

**Absent/Late Work:**

When you are absent it is **YOUR** responsibility to access any missed work on Canvas. Late assignments will be accepted 1 day late only with a 50% reduction.

**Materials needed for each class:**

* Calculators, must have these functions: Scientific Notation, Trig functions, TI-84 is recommended/free App
* Notebook paper
* Pencils/Pens
* Binder for organization
* Cell phone, Ear buds

**Classroom rules:**

* Cell phones: May only be used when given prior permission.
* Be in your assigned seat and completing the warm-up when the bell rings.
* Any homework or classwork that is due should be turned in on Cavas before the due date.
* Raise your hand when wanting to make a comment or ask/answer a question.
* Be respectful and kind to all of your peers and their learning enviornment.
* Follow all school/district rules, regulations, and policies.

**Grading Policy:**

Your AP Physics grade consists of the following: tests, demonstrations, projects, quizzes, classwork, and homework. Students are responsible for completing each component of an assignment regardless of whether or not that component is ultimately graded.

Tests: 20 points Quizzes: 5-10 points Demonstrations/Labs/Projects: 10-20 points Homework and Classwork: 5-10 points

**Lab Rules:**

* No food, drinks, or gum.
* Hair and loose clothing must be tied back and secured.
* All personal belongings must be left at your desk with the exception of a writing utensil and your lab papers.
* Goggles must be worn during all labs that utilize materials other than air and water.
* Always read the directions and labels before the use of anything in the lab and be sure to ask questions if you are ever unsure.
* All equipment must be put away and your work area cleaned as instructed.

The AP Physics 1 Table of Information and Equations may be found here:

<https://apcentral.collegeboard.org/pdf/physics-1-equations-sheet-2020.pdf>

**How to be successful in AP Physics 1:**

* Watch the Faculty Lecture before we begin each unit. Watch the Daily Classroom Videos before each lecture. These are found on your AP Classroom Homepage.
* Complete homework daily, this allows you to understand a concept before learning the next.
* We will be using The Princeton Review AP Physics 1 Prep, 2022 with 2 Practice Tests: [https://www.amazon.com/gp/product/0525570705/ref=ppx\_yo\_dt\_b\_search\_asin\_title?ie=UTF8&psc=1](https://www.amazon.com/gp/product/0525570705/ref%3Dppx_yo_dt_b_search_asin_title?ie=UTF8&psc=1)
* Form a study group.
* Helpful websites:
* Bozeman: <http://www.bozemanscience.com/ap-physics>
* Physics Classroom: <http://www.physicsclassroom.com/>
* A Plus Physics: <http://www.aplusphysics.com/>,
* Khan Academy: <http://www.khanacademy.org/science/physics>
* Crash Course Physics: <https://www.youtube.com/playlist?list=PL8dPuuaLjXtN0ge7yDk_UA0ldZJdhwkoV>
* Physics Girl: <https://www.youtube.com/c/physicsgirl>
* Professor Dave: <https://www.youtube.com/c/ProfessorDaveExplains>
* Fipping Physics: <https://www.flippingphysics.com/>

As your son/daughter’s teacher, I will treat all students equally and with respect. I strongly believe that effective parent/teacher communication will promote the academic success of students at Marvin Ridge High School.

Sincerely,

Amy Jacob

**Syllabus Contract**

**As a student in Mrs. Jacob’s class, I agree to:**

- Follow procedures and expectations as outlined in the attached letter

- Abide by policies outlined in the school handbook

- Attend class regularly and be on time

- Be courteous and respectful to my peers, my teacher, and my school

- Stay on task in class and complete my assignments

STUDENT NAME:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ DATE: \_\_\_\_\_\_\_\_\_\_\_\_

STUDENT SIGNATURE:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**PLEASE INTIAL THE FOLLOWING STATEMENTS INDICATING YOUR COMPLIANCE TO THE GRADING POLICY:**

\_\_\_\_\_\_ I understand that any late work will be accepted for a 10% reduction for each day late.

\_\_\_\_\_\_ I understand that if I am absent I am responsible for all missed work and notes.

**As a parent/guardian of a student in Mrs. Jacob’s class I:**

- Have read the course requirements/expectations information sheet for my child.

- Will let Mrs. Jacob know of any medical, physical, mental, or dietary needs of which she should be made aware.

- Will contact Mrs. Jacob with any questions or concerns.

GUARDIAN NAME:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

GUARDIAN SIGNATURE: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Honesty Pledge: To be completed and signed by the student:**

*I pledge that my participation in this class will be one of integrity. In doing this I will…*

STUDENT NAME:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ DATE: \_\_\_\_\_\_\_\_\_\_\_\_

STUDENT SIGNATURE:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_