AP Physics C: Mechanics

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Overview

AP Physics C: Mechanics is a year-long course for calculus-based physics. The class meets for 90 minutes on B days. Students will learn and use the appropriate calculus concepts as they learn the physics concepts. I will teach you the calculus you need. We will move through the material VERY fast. DON'T GET BEHIND!

Textbook *University Physics Volume 1* This is a calculus-based online textbook by OpenStax (links shown below and pdf of the text is in the Welcome folder in Schoology.
University Physics Vol1 (Mechanics)

Classroom Techniques

Students will take charge of their own learning in this course. Time in class will be devoted to working together for labs and solving problems on a whiteboard to share solutions with the class. Expect to put in 15-30 minutes ***out of class*** each day. You will get out of this class what you choose to put into it.

Main Objectives- (along with topics covered- as required by AP)

1. Analyze problems involving 1D and 2D kinematics; motion graphs, circular and projectile motion
2. Using Newton's 3 Laws, analyze the motion of objects; Newton's 1st, 2nd, and 3rd Laws
3. Use work, energy and power relationships to analyze motion of objects; work, energy conservation of energy, power
4. Analyze collisions using conservation of linear momentum; impulse, momentum, conservation of momentum, center of mass
5. Analyze the motion of objects that are rotating; rotational kinematics, rotational dynamics, equilibrium, conservation of angular momentum
6. Analyze the motion of objects that are oscillating; simple harmonic motion, pendulums, springs
7. Analyze the motions of objects in orbit; Newton's Law of Gravitation, Kepler's Laws

Course Expectations

1. Come prepared to class ON TIME everyday with required materials (including **CALCULATOR**, assignments and questions ready, and with a **great attitude**.
2. Respect others, the equipment and yourself.
3. Follow all WFHS rules.

Absences

Absences are a fact of life, but as this is an AP class, we move fast. Try to make up work ahead of any absence if possible. It is ***your responsibility to make up what you have missed ASAP***. At the pace we will be going, getting behind is NOT an option, so keep on top of things. The district attendance policy will be followed.

Course Resources

1. **Schoology:** All of my notes (PowerPoints) can be found on my Schoology site. In addition, there are videos of the worked examples.
2. **Online Textbook:** Mentioned above- online textbook.
3. **AP Classroom:** This is where you will do online homework, completing reviews and taking some practice exams. **For any online homework, you MUST turn in your work for all the problems on the due date.**
4. **Quest:** Online homework platform. **You MUST turn in your work for all the problems on the due date.**
   Join codes**: Period B2 – WFB2APCM**
   Period B3 – WFB3APCM
5. **OneNote.** This is the program we will use to collaborate on whiteboards.

Course Grading

I will only give credit for **work shown** with **correct units** on answers. **LATE WORK IS *NOT* ACCEPTED**. Online grades are updated frequently. Please check to make sure that no mistakes have been made. You are expected to be an active

participant in this class. **There are never any dumb questions or answers. All I ask is that you always try to do your best**.

Assignments/Quizzes: (20%)- Considered **intentional practice** for the exams, but VERY important for you to make sure you know what you are doing.

1. Online assignments (Quest and AP Classroom)- 50% of the grade is based on the **turning in of the work done for the online homework** (due the day the online homework is due), 50% is based on completion of the online homework. Must be worked out **CLEARLY** with *all steps* shown (including any necessary diagrams and listing of concepts)
2. AP Daily Videos- Generally assigned at the beginning of each learning target and are due at the end of the learning target.
3. Whiteboard problems are worked on in class. Each set of WB problems will earn you 0 - 10 points depending on how you are participating. **If you are absent on a WB day, you must complete the WB problems (found on OneNote) within 2 days to earn the points.**
4. Quizzes: Generally covering 3-4 Learning Targets. Will be worth 30 points and will have a re-earn available after each quiz worth up to 10 points.

Lab Notebook (20%): Labs will be hands-on and will occur on average once a week. This will ensure that a minimum of 25% of the instructional time will be spent in the lab. Students will be required to keep a hard-copy or digital lab notebook. The lab notebook can be shown to prospective universities for possible lab credit. Students will be required to ask questions, prepare procedures, collect and analyze data, explain sources of error and draw conclusions from mathematical relationships.

Assessments (60%): Exams: Each AP unit will have an exam that will be composed of previous AP multiple choice and free response questions. Students will be able to use the same materials on exams as are allowed on the AP exam (formula sheet and sheet of constants) so as to prepare for the AP exam conditions.
Grade scale is one used by WFHS and is found in the student handbook

A	90-100%	B	80-89%	C	70-79%	D	60-69%	F	below 60%

Dual Credit:
You will have the opportunity to register for dual credit from NDSCS. This course equates to 4 credits of Physics 251 and 1 credit of Physics Lab 251L. Registration will occur sometime in November.

These opportunities are provided to give you the best chance for success on the AP exams! We look forward to working together this year!

AP Physics C: Mechanics

EXAM DATE: MONDAY MAY 3, 2027, 08:00 a.m.

Sign-up information for AP Physics C: Mechanics.

1. **AP Classroom** (we may do some online practice here- you can check your AP scores, etc)
   a. Go to myap.collegeboard.org
   b. If you have a college board account, sign in with that. If you do NOT have a college board account, sign up for one using a ***personal email address*** (allows access to results beyond high school)
   c. Sign up for **AP Physics C: Mechanics** using code – B2.3 - **9MNWQ6**

- B3 – **EAJARW**