



Archbishop
MOELLER

AP Physics 1

SC314

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AP Physics 1

Course Information:

1. Science
2. Year long
3. AP
4. Seniors (juniors with approval)
5. **Signing Up for this course requires you to take the AP exam in the Spring. Failure to do so, will forfeit your AP credit, and your weight on your transcript for the course.**



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The benefits of this course include:

- Students will grow in their ability to work diligently and consistently in a rigorous mathematical environment.
- Students will grow in their ability to synthesize abstract mathematical and physical concepts and then apply them to familiar as well as unfamiliar problems.
- Students will grow in their ability to think logically.
- Students will grow in their ability to solve multi-step, open-ended and word problems.
- Students will grow in their ability to design, conduct and interpret the results of experiments



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Course Description:

AP Physics 1 is an algebra-based course in general physics. General physics topics presented during the course closely follow those outlined by the College Board and also mirrors an introductory level university physics course.

AP Physics 1 is organized around six big ideas that bring together the fundamental science principles and theories of general physics. These big ideas are intended to encourage students to think about physics concepts as interconnected pieces of a puzzle. The solution to the puzzle is how the real world around them actually works. The students will participate in inquiry-based explorations of these topics to gain a more conceptual understanding of these physics concepts. Students will spend less of their time in traditional formula-based learning and more of their effort will be directed to developing critical thinking and reasoning skills.



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Academic Requirements:

1. Students can generally expect 40-60 minutes of homework per night
2. Students will complete approximately 4 labs per quarter, some of which will include formal lab write-ups.
3. Students are expected to read sections of the textbook as material is presented, and outside reading may be beneficial at times in aiding understanding of more difficult topics.
4. It is not uncommon that a student may spend 6-8 hours per week on preparing for/completing assignments and lab work in this class in order to be successful.



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- In addition to rigorous mathematical analysis, students will conduct several labs each quarter. Labs are “hands-on” and placed throughout the instructional year. Students will spend at least 25% of total class time in 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 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 added to the lab report. After these labs, each student group must 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.



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- Students work in lab groups, but each student must submit a lab report which is turned in the day after the conclusion of each activity, then graded and returned. The report must include the following components:
 - Statement of the problem
 - Hypothesis
 - Discussion or outline of how the procedure will be carried out
 - Data collected from the experiment
 - Data analysis
 - Conclusion including error analysis
 - Peer review (if included in this lab)



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