AP Physics 1 Course or Pre-AP Physics 2

Instructor: Vicki Dincher vdincher@comcast.net

Description:
Physics is the study of matter and energy and their interactions. It provides a systematic understanding of the fundamental laws that govern physical, chemical, and biological processes.
This physics course provides students with a modern view of the fundamental, foundational concepts of physics; develops the students' analytical, problem solving skills; integrates math, science and technology; and is designed for students who are planning to major in the sciences, medicine, or engineering. The major topics covered are mechanics, energy, electricity and magnetism, waves, and modern physics. Additional topics include motion in a plane, internal energy, geometrical optics, and nuclear physics. This class includes laboratory work and written lab reports. Students are encouraged to take the SAT II in Physics or the AP Physics 1 exam upon completion of this course and will be prepared for future AP Physics 2 coursework. (There is no CLEP exam for Physics)

- Open to students in 10th-12th grade
- College-preparatory class leading to SAT Subject testing and future AP Physics coursework
- Students should be ready to begin working toward college level reading and responsibility
- Weekly assignments and class notes posted Thursdays.
- 34 weeks. Coursework begins the last week of August
- To apply, request a student application from the instructor

Cost: $549 (does not include text or lab supplies)

Test Readiness: Beginning in the fall of 2014, Collegboard.org is changing the AP Physics exam format. **As a result, this class will prepare students for success on the AP Physics 1 exam and to enroll in an AP Physics 2 course the next year.**

Prerequisites: Successful completion of Algebra I and Geometry

Lecture Content/Live Web-ex Discussions: All course lectures are recorded and available for students to playback at their convenience. I also post podcasts and short video clips explain course concepts as needed. Live discussions or problem-solving sessions will be held several times each month and will be recorded for those unable to attend. These sessions will be designed to provide students assistance with concepts and math problems assigned for homework. Regular Skype "office hours" will be listed after classes begin (survey of student time zones will determine the actual office hours) so students can reach me for immediate feedback or for individual or group homework help.

Labs: Approximately ten hands-on experiments will augment the core concepts studied and fulfill the lab requirement for a high school science credit. These experiments can be completed at home (adult supervision is advised). Most use household materials or supplies readily available from homeschool science companies. A full list will be provided with the course syllabus.

Scientific Writing: Effective scientific writing is a vital skill required for success in college science courses. To that end, instruction in the process of writing, revising, and completing a formal physics lab report will be given in the first several weeks of the course enabling students to practice these skills throughout the remainder of the year.

Student Evaluation and Feedback: Students will be graded on homework, labs, discussions, and exams. The homework will be a combination of multiple choice and short answer questions done on the course website and handouts to be completed, scanned, and uploaded. All student work will be graded and returned within one week of submission.

Communications: Course communication occurs through the message system on the course website, and contributions to any discussion forums. I am also available to students through Google Hangouts and Skype.

Technical needs: Broadband, high speed Internet and an e-mail account that accepts large files. Weekly assignments are downloaded as PDF files from the website. A scanner is required so that students can scan their completed work and upload it to the website for grading.

Time Commitment: The qualified student will spend 5-7 hours per week on this class. This accounts for reading the assigned texts, answering review questions, calculating practice problems, hands-on lab experiments, and discussing class work and reading assignments with others in the forums.

Class Meeting Time: Students are not required to "meet" at a scheduled time, but all homework is due via e-mail by Sunday evenings, midnight EST, unless otherwise noted. Scheduled discussion times will be recorded for those unable to attend the live discussion times. I update the website syllabus the week before and send out class updates via e-mail as needed.

Qualifications: I have an M.S. in biology. I have experience teaching at both the high school and community college level. From 1995-present, I have taught biology and physics classes (both first year and AP levels) in the classroom and have been teaching online since 2010.

Course Priorities: While priority is given for those who would like to successfully complete the SAT II Physics exam and/or to take a future AP Physics course, this course is also a good fit for those desiring a solid first year course in physics. My goal is to expand your appreciation of the fundamental concepts and laws that govern the physical realm we live in.

Major Project: Students will use the concepts of force, impulse and momentum to build a contraption to protect an egg when dropped from a height of at least 12 feet. Video uploads of this project will allow for group discussion of design issues. An optional project will be the building of a balloon popper that incorporates the six simple machines sequenced to pop at least one balloon. Details will be provided after appropriate concepts have been covered.

Required Texts: Exploring Creation with Physics, Second Edition by Jay Wile published by Apologia Educational Ministries. Several additional topics, not covered in the text, will be provided by the instructor from Glencoe and Holt high school physics texts.

Who should apply: The well-prepared applicant also has completed a physical science course in the middle school years and has a good foundation in algebra and geometry. This course will require some basic trigonometry (sine, cosine and tangent), but instruction in these math functions will be provided by the instructor if necessary.

To apply or ask a question regarding this class, email Vicki Dincher at vdincher@comcast.net