

Intro to Chemistry & Physics

Instructor: Vicki Dincher vdincher@comcast.net

Course Goal: Following this course, students will be well prepared to succeed in future high school or pre-AP science courses, specifically biology, chemistry and physics.

Course Description: Science is a way of knowing, a process for gaining knowledge and understanding of the natural world. This class places emphasis on concept understanding and analysis, discovering the natural world around us and how things work. The course is designed to continue the investigation of the physical sciences begun in earlier grades. The course will build a rich knowledge base to provide a foundation for the continued study of science. The investigations will be approached in a qualitative and quantitative manner in keeping with the developing mathematical skills of the students. The curriculum will integrate the following topics from both chemistry and physics:

- Structure of atoms
- Structure and properties of matter
- Motions and forces
- Conservation of energy, matter and charge

This course is:

- Open to students in 8th-9th grade (advanced 7th graders will be considered)
- For students who are ready to begin working toward college level reading
- **This course can be taken as a year-long study or as a refresher of either chemistry or physics in a one-semester course. Chemistry will be covered in the fall semester and physics in the spring.**
- 34 weeks with coursework beginning the last week of August

Cost: \$279 per semester or \$499 for full year course (this does not include the text or lab supplies)

Web-ex Lectures/Discussions: This course is asynchronous which means recorded video lectures covering weekly concepts will be available on the course website for students to view at their convenience. I also post podcasts and short video clips explaining course concepts as needed. Live discussion classes will be held approximately 3 times per month as review and homework help opportunities. All live discussions classes will be recorded and available for students to playback at their convenience. 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.

Lab Activities: Inquiry is the central theme in physical science. It is an integral part of the learning experience and will be used in both traditional class problems and laboratory work. The essence of the inquiry process is to ask questions that stimulate students to think critically and to formulate their own questions. Observing, classifying, using numbers, plotting graphs, measuring, inferring, predicting, formulating models, interpreting data, hypothesizing, and experimenting all help students to build knowledge and communicate what they have learned. Inquiry is the application of creative thinking to

new and unfamiliar situations. Students should learn to design solutions to problems that interest them. This will be accomplished in a variety of ways, but approximately six hands-on experiments and six virtual experiments will complement the core concepts studied. These experiments can be completed at home (adult supervision is advised) and most use simple household materials.

Student Evaluation and Feedback: Students will be graded on homework, labs, discussions, projects, 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 messaging on the website and email. Each year more interactive technology is added. I am available to students through Google Hangouts and Skype by appointment and at regular “office hours”.

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. The use of online interactive resources may require free downloading of shockwave flash players or other plugins. A working scanner is also required to scan and upload homework for grading.

Time Commitment: The qualified student will spend about 5 hours per week on this class. This accounts for reading the assigned texts, answering multiple-choice questions, writing short essays and discussing class work and reading assignments with others in the forums.

Work due dates: All homework is due via file upload on the course website by Sunday evenings, midnight EST. The course syllabus and weekly class updates will be on the course website by Sunday morning each week.

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: The number one priority of this course is to prepare the student to successfully complete future high school science courses. The number two priority is to expand the student’s appreciation for the amazing complexity and wonder of our physical world

Major Projects: One model (chemistry semester) and one science fair project will be completed for this course in a topic that interests the student and preapproved by the instructor.

Required Texts: Physical Science: Concepts in Action by Wyssession, Frank & Yancopoulos; published by Pearson Prentice Hall (2004). ISBN: 0-13-069988-8

Who should apply: Students should be in 7th, 8th or 9th grade.

For more information about Vicki’s classes, visit www.vickidincher.com. To apply or ask a question regarding this class, email Vicki at vdincher@comcast.net