

PHSN 106: Energy, Motion, and Matter

Fall 2015 ONLINE

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OC 4512 & www.cccconfer.org

Help Sessions: M & W(OL) 9:45-10:45 am

<http://blackboard.miracosta.edu>

http://tiny.cc/SIA7e_student

Blackboard is your course management system

Required Materials

The Sciences: An Integrated Approach, 7e, Trefil & Hazen © 2013 John Wiley & Sons, Inc., ISBN: 9781118185261 (but any format will do, e.g. 9781118130353 or 9781118545454)

reliable internet access

email, checked regularly

an open mind...

Weekly Deadlines

- Weeks run from 2pm Monday to 2pm on the following Monday.
- Most assignments are due by 2pm on Monday after they are assigned.

Hmmmm...

- What *is* science?
- What forces exist in this universe?
- How do atoms combine to form new materials?
- Why do planets wander slowly across the sky?
- Why must animals eat to stay alive?
- Why is it easier to make an omelet from an egg than to make an egg from an omelet?
- What is lightning?
- What is color?
- Why are there so many different kinds of materials in the world?
- How does blood clot?
- How have computers gotten so much faster?
- How do scientists determine the ages of fossils?

An introduction to physics and chemistry.

This course introduces the nonscientist to fundamental topics in physics and chemistry while emphasizing the nature and processes of physical science. While the course emphasizes primarily *qualitative* comprehension, the sciences utilize the language of mathematics so *quantitative* reasoning is sometimes required. I hope to convey to you some of the excitement and satisfaction that scientists derive from investigating the physical world around us while simultaneously inspiring you to do the same.

You cannot teach a man; you can only help him to find it within himself.

Galileo said this hundreds of years ago. Socrates knew it thousands of years ago. Research shows that humans must construct their own knowledge: *cognitive conflict and deep, intellectual discourse are required to elevate your understanding*. As facilitator, I will help you become metacognitive through carefully designed, intellectually engaging learning sequences that elicit your preconceptions, confront conflicting ideas, and resolve issues. Successful students will then help each other develop their critical reasoning abilities, quantitative literacy, evidence-based problem-solving skills, and communication skills. **It is not what I do that matters; it is what you do. Ultimately, you are responsible for your own level of engagement, discourse, and understanding.**

Policies

- **Late/Make-up Work:** No such thing, for any reason. There are safeguards built in to accommodate life (see the grading scale on next page).
- **Instructor Contact:** In addition to regular help sessions, I will communicate with you via email, embedded announcements on Blackboard, discussion forums, and feedback on assignments. You can expect responses to emails within 48 hours, excluding weekends and school holidays. In person and virtual appointments are also available.
- **Academic Integrity:** Required. Your work must be unique and original. Any form of academic dishonesty may result in the maximum possible penalties. See MiraCosta [Board Policy \(BP\) 5500](#), [Administrative Procedure \(AP\) 5500](#), [BP 5505](#), [AP 5505](#), [AP 5520](#), and the [college catalog](#).
- **Collaboration:** Necessary. Science is – by nature – collaborative. You are *required* to engage each other. Group work should be distributed and credited fairly.
- **Classroom Etiquette:** Though obviously a virtual classroom, exercise good judgment and practice civility in all course-related communications and with all participants. Any disruption of the learning environment may result in your removal from class and possibly disciplinary action. See MiraCosta [BP 5500](#), [AP 5500](#), [AP 5520](#), and the [college catalog](#).

Help – Regular drop-in times are scheduled (see above); others available by appointment.

Special Accommodations

A student with a verified disability may be entitled to appropriate academic accommodations. Contact the [Disabled Students Program and Services Office](#) at 760.795.6658.

Workloads for College Courses

You should expect to spend at least two hours per week outside of class for each unit of credit attempted (full term courses). A full term “in person” PHSN 106 class meets for three hours per week so you should spend this amount of time *in* your virtual class, e.g. on lectures, in-class activities, etc., *prior to* “out of class” time (e.g. reading, homework, etc.).

Overall %	Grade
≥ 90	A
80 – 89	B
70 – 79	C
60 – 69	D
≤ 59	F

Learning Objectives:

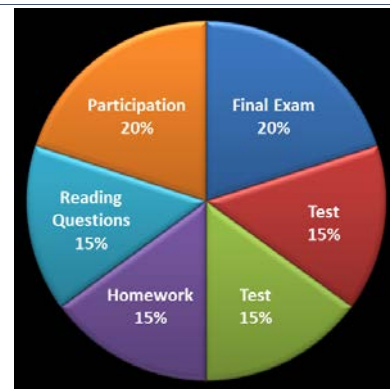
- Analyze experimental data to determine correlations between independent and dependent variables and construct justifiable cause and effect explanations for those correlations.
- Determine the forces acting on a system of objects then predict the objects' motions, based on Newton's laws and gravitation.
- Predict and explain the basic chemical and physical properties of an element, based on its atomic structure and position on the periodic table.

Overarching Goals:

- Witness, appreciate, and employ the nature and process that is science through the eyes of physics and chemistry.
- Appreciate the practicality and relevance of the sciences to your everyday life.
- Comprehend the main ideas and develop the "big picture".
- Develop critical reading, thinking, and problem-solving skills useful in a variety of situations.
- Foster a lifelong interest in the sciences and relevant current events.

I do not *give* grades; you *earn* your grade.

Everyone starts with a zero. Your grade is based on your absolute score; there is no curve. It is in your best interest to help each other learn the science. Incompletes can only result from "incomplete academic work for unforeseeable, emergency, and justifiable reasons." See the [college catalog](#) for more information.



- Participation (20%)** – Some activities will be graded primarily on your level of engagement, e.g. elicitation questions, writing prompts, etc. Some are timed; others are not.
- Reading Questions (15%)** – Multiple-choice reading questions are required most weeks and must be completed *before* 2pm on Monday of the week they are due. Each set is untimed and allows two attempts but you must finish each time you start. The higher of the two attempts per set contributes to your grade. Reading assignments are for the text [SIA 7e](#) and are on [Blackboard](#). **Both the Student Questionnaire (ungraded) and Syllabus Quiz (graded as Reading Questions) are online attendance requirements: you will be dropped if you do not complete them before their respective deadlines.** See MiraCosta [AP 4105](#).
- Homework (15%)** – Periodic homework is required. Significant emphasis is placed on assessing how well you are able to explain your reasoning on the types of questions asked in our active-learning activities. These questions are similar to test questions so you will greatly benefit from working to be sure you fully understand both the answers and reasoning (many find that working with assistance during help sessions is extremely useful in preparing them for exams). They will be graded using the rubrics posted on [Blackboard](#) and indicated with the assignments. Some of the homework will be in the form of Ranking Tasks (RTs) and other PDF "fillin" forms. **The PDF "fillin" forms require using the Adobe Reader outside of a web browser. *Opening the files inside of a web browser and/or using other PDF handlers will not work!*** There are instructions and videos available to assist with the files. Assignments must be submitted by 2pm on Monday of the week they are due.
- Scaled Participation and Homework** – In order to account for the occasional low score and/or missed assignment, both the "Participation" and "Homework" portions of your grade will be scaled as indicated at right. **Note that this does not apply to your overall course grade.**
- Tests (30%)** – There will be three tests, each over material covered since the previous one. They may include various question types (e.g. multiple-choice, short answer, etc.) and are timed (95 minutes). The lowest score will be dropped.
- Final Exam (20%)** – The cumulative final exam is required. It may include various question types (e.g. multiple-choice, short answer, etc.) and is timed (110 minutes). You are allowed one *handwritten* 8-1/2" × 11" cheat sheet.

Score (%)	Scaled
≥ 86.0	A
74.0 – 85.9	B
62.0 – 73.9	C
50.0 – 61.9	D
≤ 49.9	F

Course Orientation, "How To" Videos, and Help

Numerous multimedia clips and multiple instructor contact points are available.

Stargazing Opportunities

[MiraCosta Astronomy](#) holds free public star parties during regular semesters. See the [website](#) or call 760.757.2121 x6201.

Important Dates	Your responsibility!
08 Sept	First day of classes (15 week)
11 Sept	Last day to add this course
17 Sept	Last day to drop w/no record and be eligible for refund
08 Oct	Last day to file for P/NP
23 Nov	Last day to drop with a W
11 Dec	Last day of classes (15 week)
14-19 Dec	Final Exams

