

Introduction to Physical Science

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Hours: MWF: 10:30-11:30, TuTh: 12:00-1:00,
or by arrangement

Texts: Conceptual Physical Science, 3rd ed.
By Hewitt, Suchocki, and Hewitt
Final: 8:00-9:50 12/14/10

Prerequisites:

Although there are no formal prerequisites, you will be performing simple arithmetic operations using a calculator. Be sure to bring a calculator to every class meeting (starting with the next meeting). You will also be using computers in the laboratory section of the course. Assistance will be provided as needed for using both the computer and your calculator.

Course Material:

This course is meant to introduce non-science majors to the physical sciences. Various topics from physics, chemistry, astronomy and earth science will be examined. Most of your work will consist of hands-on activities.

Teaching Style/Expectations:

Learning science is like learning tennis. You can read about it and have people show you how to do it, but the only way to really learn it is to do it yourself. That means I will maximize in-class time for you to work on hands-on activities, typically in groups, where I can answer individual questions. Note this is a successful strategy only if you ask questions, and that is the biggest expectation I have of you. ASK LOTS OF QUESTIONS!!!

Warning! Many of your questions will be answered by questions of my own. If you accept the fact that I will not spoon-feed you answers, then it will save you a lot of frustration this semester. Besides learning concepts in physical science, an additional goal of the course is to help you become an independent learner where you are able to reason through problems on your own without having to rely on someone like a teacher.

Grading:

I will determine your grade by adding up the points you accumulate throughout the semester. Point values are equally weighted. For example, the 5 points from each lab assignment has the same "value" as 5 questions from the quizzes. The three methods for determining your grade are discussed below. All grading will be based on a straight percentage (i.e., A: $\geq 90\%$ B: 89.9% - 80% C: 79.9% - 70%, D: 69.9% - 60%).

Tests:

A 10-minute multiple choice quiz will be given at the beginning of every week. Each quiz will be worth 10 points and will cover the material from the previous week. Your two lowest quiz scores will be dropped. This is to be used for unavoidable absences. There will be no make up tests for any reason! A cumulative final at the end of the semester will be worth 50 points. It will consist of 50 questions taken from the semester's quizzes.

Lab Activities:

The majority of your in-class time will be spent doing hands-on, group activities designed to introduce various course topics. Each activity will include a lab report that will be due at the beginning of the following week. Each day's activity will be worth 5 points (multi-day activities will be worth some multiple of 5 points). Your four lowest report scores will be dropped (with adjustments for multi-day activities). This is to be used for unavoidable absences. The 5 points for the report is also indirectly an attendance grade. For this reason, there will be no make up reports for any reason!

No late reports will be accepted for any reason, unless you are absent. The report that is due the day you are absent must be turned in the first day you return to class. Otherwise, it will not be accepted. When absent, you get a zero for that days work. If the day of your absence happens to be a multi-day lab, then your report will be penalized proportionally. Your report score can also be penalized if you leave early or arrive late.

Research Project:

Each student will team up with another student, research a topic related to the physical sciences, and present the result of their research to the class during a 20-minute presentation. The project will be worth 30 points for each student. Details will be given later in the semester.

An additional factor that may affect your grade is based on your classroom conduct. You may receive a few bonus points based on the "effort" that I see from you. If you are only one point away from a C and I know you've worked hard in this class then you will probably receive a C. If I saw little or no effort from you then you receive a D. Conversely, unprofessional behavior will result in your receiving negative points that will lower your total score. These negative points will be assigned as needed per incident.

After each test, I will pass around a grade sheet that looks like the following, though with more rows. Note you will need to know your student ID to follow your grade progress.

Possible Points: 220

A ≥ 198

B ≥ 176

C ≥ 154

Tests Dropped: 1

Labs Dropped: 2

Physical Science

	Test #	Lab #	Lab #	
ID	12	23	24	Total Score
930419	9	0	5	174

Classroom Conduct:

Unfortunately there are a minority of people who do not understand that common sense rules for professional behavior extends into the classroom. I expect, as should you, an environment of mutual respect – between teacher and student, and between students. Lapses will result in negative points as discussed above.

I also have a pet peeve. Cell phones are great. I love mine. It's amazing what you can do with them. However, the classroom is not the place for their use. If you need to do calculations then use a calculator. Save the picture taking and phone number entering for after class. If I see or hear a cell phone, then the offending party loses one point from his/her quiz scores. I hate doing things like this so please make sure phones are off and out of sight.

Course Structure:

In essence, this course is divided into weekly modules. At the first meeting of the week, you will turn in your previous weeks lab work and take a quiz based on that material. I will also assign the week's lab groups (i.e., you will be working in different assigned groups each week). Typically a lecture will follow. You should be seated at the center tables or facing forward at the side "peninsula-type" lab stations for this part of the day.

After lecture is completed I will give you a lab handout and you will break up into your assigned groups at one of the eight lab stations. Brief lectures will often intersperse and/or follow your hands-on activity. When you finish your group work, you should go back to a seat at the center tables to work individually on the study guide, which will be the last page of your handout. The study guide will have questions that will lead you to the important sections in the text that you need to read and understand for the quiz that you will take on the following week. Note answering the study guide questions alone will not prepare you for the quiz. You must read the relevant text sections to succeed on the quiz.

This procedure is repeated on the second day of the week, though there is no quiz to take, nothing to turn in and the lab group memberships have already been assigned.

Attendance:

Attendance is mandatory. The college defines excessive absences as equal to the weekly number of class meetings. That means 2 absences for this class. You should consider yourself in danger of being dropped from the class if you exceed this number. If you are late, it is your responsibility to let me know at the end of class that you were not absent. Also, if late, don't forget to turn in your report. It will not be accepted at the next class meeting. Note you are responsible for any information you did not receive due to an absence or lateness.

Student Learning Outcomes:

Upon completion of this course, you will be able to:

- recall fundamental principles and basic definitions from the physical sciences.
- solve conceptual physical science problems.
- solve simple quantitative problems in the physical sciences.
- analyze experimental data.

Plagiarism:

One definition of plagiarism is:

To use and pass off as one's own the ideas or writings of another.

In other words, the words in your reports should be your own. You are expected to work in a group and discuss class concepts, but your final answers to report questions should be your own. Each answer that is clearly copied will lower your report score. Note I will not distinguish between the copier and the person being copied.

I _____, have read and understand all sections of the
(name
syllabus for _____. All of my questions have been
(course)
answered satisfactorily. I will keep the syllabus with my lecture notes and will take full
responsibility for understanding all of its aspects throughout the semester. I am aware
that there may be changes made to the syllabus announced during the semester and will
make a note of these changes on my handout. I will be responsible for these changes
even if I am absent for the relevant announcement.

X _____
(signature) (date)