

Science 225

INSTRUCTOR: Brad Halfpap
CHCB - 232
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Office Hours See Contact Information on MOODLE

Teaching Assistants: See Contact Information on MOODLE

LECTURE Section 00: MWF 2:00 to 2:50 in room 110 in ISB
Tuesday Labs: Room 13 of the CHC Building
Thursday Labs: Room 13 of the CHC Building

TEXTBOOK:
Conceptual Physical Science 6th ed. Hewitt

MOODLE SITE:

You will need to access this site regularly. Announcements of importance and/or interest to the course will be posted on this site, along with all reading assignments, homework, laboratory exercises, handouts, useful web links, and any updates to the course schedule.

COURSE CONTENT

This course has been designed specifically with the K - 8 education pre-certifier in mind. The content of the course will relate directly to what you will be doing in your classrooms as you seek to fulfill your principal's requests that you teach the Science Education Standards. As this is the University of Montana, we will use the standards posted by the office of public instruction. See the Moodle site for copies of these files and a link to the OPI site. I will ask you to explicitly make reference to these in a number of our assignments so you should probably print copies for your notebook.

We will focus on topics of motion, force, and energy and relate them to our solar system with particular emphasis on the Earth, Moon, and Sun for the first half of the semester. The last half of the course will give you an introduction to the phases of water, light, electricity.

COURSE COMPONENTS

To encourage different styles of thinking and learning, we will engage in a wide variety of activities:

LECTURES:

Most of the underlying concepts will be introduced in the lecture. It is important to come and to be engaged. The textbook will supplement the lecture but cannot substitute for it. Some of the material presented in lecture will be posted on our web site. There will be times when material will be presented first in your laboratory as an exploration.

READINGS:

Readings from the textbook and other sources (available through our Moodle website) will be indicated in the weekly assignment. The earlier and more carefully you study these, the more good they will do you.

HOMEWORK:

It takes more than listening to a lecture, or reading a tutorial, to develop a working understanding of the material covered in this course. Science is a problem solving discipline and that takes practice. There will be a homework assignment due on Thursday of each week. The nature of these questions varies but your neatly presented responses will be submitted to your Laboratory TA at the beginning of the laboratory period on Thursday. If an answer is in the form of one or more paragraphs, they should be typed. Drawings and computations are usually done by hand but be sure to make them neat. For example, if you want to make a straight line use a straight edge. If you are presenting a graph use EXCEL or graph paper.

These exercises will keep you up to date with the course material, give you some problem-solving experience (which will help you greatly on the exams!), and encourage you to actively experiment with some of the course topics. Each assignment submitted to your TA will be graded on a check+, check, check-system. This translates into 100%, 80%, and 60%. Solutions to the homework problems will be provided the following week (Tuesday) on our Moodle site. Homework sets turned in after the beginning of your lab period but before 5pm Friday will be penalized 20%. Solutions handed in on Tuesday by 5pm will be penalized by 40%. After that they will not be accepted. To help you deal with the unforeseen, you may drop your lowest homework grade.

LABORATORIES:

Your weekly lab sections will give you a chance to explore the course material in a more informal, hands-on way. Fully participating in these is crucial to your success in this course! If you miss no more than two of these meetings during the semester, I will give you a 10% bonus on the semester final. (i.e. I will increase your final exam score by 10% of the total points possible on the final exam.) If you miss more than four of these meetings, I will impose a 10% penalty on your final exam grade. **Please note:** You will be responsible for downloading any laboratory materials from the Moodle site and bringing them to class with you on the appropriate day.

PROJECTS:

There will be five longer term assignments. They will be described in detail as they are assigned. See our Moodle site. Note that you will need to sign up for the Afterschool Presentation Project very soon and that the Lunar Observation Project requires initial observing sessions at the beginning of September.

EXAMS:

All exams will contain multiple choice, conceptual, and quantitative problems. The final is comprehensive. To give you a break on your lowest midterm score, I will count it somewhat less than your other two midterm scores.

GRADING

Your grade for this course will be based on the following:

EXAMS: Exams 1 - 3 (16% for two highest, 13% for lowest)	45%	<u>Grade Distribution:</u> 88 - 100% A- to A+
FINAL EXAM	20%	78 - 87% B- to B+
LABORATORY EXERCISES	15%	68 - 77% C- to C+
PROJECTS	10%	50 - 67% D- to D+
HOMEWORK	10%	Below 50% . . . F

SOME IMPORTANT THINGS TO KEEP IN MIND

Your success in this course will depend much more on your ability to think critically than on your ability to memorize!

This course covers a lot of ground. It can be very difficult to catch up if you fall behind! The good news is, there are lots of resources at your disposal- instructors who love the chance to work with you one-on-one, physical science simulation software that allows you to explore at your own pace, outstanding web resources, and tutors. Avail yourself of these resources early, and often.

The standard expectation for college courses is that two hours outside of class will be required for every one credit hour in class. This is a five credit course, so you should expect to spend an average of 15 hours/week on this course. Do not take this course unless you have the time to devote to it.

For those of you planning to become teachers, it is important that you realize that this is NOT a science methods class. The sole purpose of this class is to give you some background in physical science content. C&I 404 will address the latest educational research on effective methods of science teaching.

COURSE POLICIES

1. Exams must be taken at the scheduled times unless a make-up time is arranged BEFORE the exam. Make-up exams will only be given for exceptional emergencies for which written documentation can be provided. The final MUST be taken at the time scheduled by the registrar.
2. Homework assignments are due at the BEGINNING of the lab period on the date specified in the assignment. LATE ASSIGNMENTS WILL BE MARKED DOWN.
3. You cannot switch discussion or lab sections without prior permission from the your TA.
4. Attendance will be taken at lab sections. Absences may be excused at the discretion of the instructor with proper written verification of an unusual responsibility or emergency. Students who show up for the first few minutes of the class and then leave will be counted as absent.
5. For excused absences from discussion or lab sections, notification by phone, e-mail, etc. MUST be given BEFORE the section begins (except for documented emergencies). Excused LAB absences will be credited as an average of all of your other lab grades.
6. You must attend the lab sessions in order to write and submit lab reports. An unexcused lab absence will result in zero credit for that lab.