

Physics 4C Winter 2010, Prof. R. Francis,
Course Information Version 01-03-10

Instructor: R. Francis

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Office Phone: Ext: ??? (please email rather than use the phone)

Office Hours: W 2:30 – 3:30, TH 2:30 – 3:30 F 12:30 – 1:20 and 2:30 – 3:30. No questions may be asked on the day of a test if the question is related to the test.

Lecture Hours: MTWThF 1:30-2:20 (Room S34)

Lab Hours: Tuesday 2:30-5:10 (Room S17)

Final Exam Date: See school calendar

Text: University Physics, Young and freedman

Prerequisites: Mathematics 1C. Students must be taking Mathematics 1D concurrently or else have completed 1D.

Note: Last day to drop a class with a “W” is **Feb. 26th**
Students who do not drop by this date will be given the appropriate grade for their achievement in the class at the end of the quarter.

A) COURSE GOALS:

Students should be able to

- a) identify key concepts in play for conceptual questions and problems in fluids, waves, thermodynamics and optics
- b) systematically use fundamental equations that are useful in solving problems in these areas.

B) DESCRIPTION OF THE COURSE

The class will consist of lectures, labs, and collaborative work among students.

1) Materials Needed

Straight Edge, Calculator, Protractor, Circle Template, Regular white copy paper for doing problems, and **separate Lab Notebook**. A loose-leaf notebook is very much recommended, but not required, to help organize homework (which will sometimes be collected) as well as handouts, lecture notes, etc. A 3 ring binder loose-leaf notebook with a good three-hole punch can do wonders for keeping things organized. In my experience a spiral notebook or other types of bound

notebooks do NOT allow for good organization of materials. Lab notebook is separate (see below)

2) Homework

It is virtually impossible to learn physics without doing problems, and that means at least giving them a good try. Please attempt to do all of your HW. The attention you give to the homework assignments is crucial to your success in this course. Doing physics is a skill that you develop, and practicing the skill is as necessary as practicing to perfect any other skill.

In each chapter you will be given approximately 8 Qualitative Questions and 10 Problems requiring a mathematical solution. See assignment calendar for the weekly HW assignment.

HWs that are graded will receive 50% for effort (number of completed problems out of the full assignment) and 50% for the content and effort of **2 or 3 questions/problems selected by the instructor**. You will not be told which two or three problems on each assignment will be graded however, so please do all of them if you want to receive full credit.

Problems are to be done on regular blank white copy paper and must be done in the following format:

a) draw a sketch of the problem or some useful diagram (a problem without a sketch is considered incomplete),

b) present the given information,

c) write one equation under the other as you apply physics principles and

d) put a box around your final answer to each part of the question.

If you like, you can do this work in two columns to save paper. (Often I find that making a quick sketch on the right hand side of the page, plus listing the given information, also on the right hand side, is a good way to present problems) You will do the physics work on the left side. I will give you sample HW so that you can see one good and preferred format. You may use another format however.

The work must be neat, in a dark pen or pencil, and relatively large so that it is easy to read.

HW will be due at the beginning of class at 1:30.

(see calendar for due dates) You can submit it in the HW box at the front of class or drop it off at my office by 1:30pm. If you are absent when HW is due, then you can submit your HW to me by U.S. mail postmarked before Tuesday at 1:30.

Late HW will not be accepted; HW is late after 1:40 pm.

Grading of HW:

Approximately half of the 10 HWs will be graded. Your lowest HW score will be given only 50% weighting compared to the others.

Your work must be your own. You may consult with students after you have made an attempt to do HW problems on your own. You may not copy another person's HW. Instead, contact them for help, and then do your own work. If your HW has been obviously copied from another person's HW then you will be guilty of cheating and reported to the appropriate authorities (see below). The school's honor code is in effect on this matter.

In most cases, the answers to the HW problems are in the back of the text, and we will reserve some time to go over HW Problems in class.

3) Laboratory work:

Laboratory experience is critical for any person entering a scientific or technical field. All lab reports should be written by each individual student even if the lab is done with other students.

See previous page for description of necessary type of lab notebook. For each lab you will have two sections:

a) Lab Notes Section

Here you notes for the lab given by the instructor, data, observations or any other notes that may be of use to someone who wants to know what happened during that day in the lab.

b) Lab Report Section

Here you will write a formal lab report starting with a hypothesis and ending in a reflection (see webpage for lab report details)

Your lab reports will be written in the lab and your lab notebooks will be graded. Lab notebooks stay in the

lab. No extra time will be allowed to write the lab report; the report must be finished in class.

There will be 10 labs. 3 will be graded. You will not be told which 3 however. There are no make-up labs.

If you miss a lab that is graded, and it is excused, then the instructor will choose another lab of yours to grade.

If you miss a lab and it is not excused then your score for that lab is a zero.

A lab is excused if

a) you inform the instructor before 8am of the day of the lab

b) you have a doctor's note, a legal notice, or other documentation of extraordinary circumstances (to be judged by the instructor). Please note that the acceptance of the documentation is at the discretion of the instructor. The general rule for acceptance would be that the act of taking the test would have caused a great or irreversible hardship to the student. In no circumstance can a student be excused from 2 labs

If you miss 2 or more labs then you cannot pass the class and may be dropped from the class; lab work is a necessary experience to learn and appreciate physics.

Lab Final: you will be given a lab final on the last lab day. It is worth 25% of your overall lab grade; the rest of the grade is lab reports.

4) Attendance

You are expected to be here at the beginning of each class, every day, for the rest of the quarter. **If you are more than 10 minutes late then you are considered absent for the class.** You must attend 80% of a class to be given credit for attending that class on that day. If you have more than 5 absences, prior to the withdrawal date, you may find yourself dropped from the class. However, it is your responsibility to ensure being dropped or withdrawn from the course in order to avoid an "F" in the course if you stop attending lecture or lab.

If you miss the first and the second day of class then you will be dropped. If you miss 2 of the first 5 classes, then you will be dropped unless you contact the instructor before the Friday at 5pm of the first week.

5) Tests

There will be 6 tests in this class at about 25 minutes each. Each test will cover approximately 2 chapters in the textbook (see assignment Calendar). The tests will consist of multiple choice questions as well as problems. No calculators will be allowed in order to guarantee that everyone has an equal chance at the exam; learn to approximate answers using simple arithmetic. The lowest of your test grades will be given half the weight of the others when calculating your test average.

There will not be make-up tests. If you miss a test and it is unexcused then the score is a zero. If you miss a test and it is excused, then the average of the other 5 tests will be your score for the missed test.

A test is excused if

a) you inform the instructor before 10am of the day of the test

b) you have a doctor's note, a legal notice, or other documentation of extraordinary circumstances (to be judged by the instructor). Please note that the acceptance of the documentation is at the discretion of the instructor. The general rule for acceptance would be that the act of taking the test would have caused a great or irreversible hardship to the student. In no circumstance can a student be excused from 2 tests.

If you are tardy for an exam you will not be given additional time.

The lowest of your test grades will be given half the weight of the others when calculating your test average.

The first test on fluids counts for only one half of the weight of a regular test since it is only one chapter.

6) Final:

The Final exam will be given as per the school calendar. There will be no make-up final. You may bring 2 sides of regular paper with notes and equations

to the final exam. If you are late to the final then you will NOT be given additional time. A calculator is allowed on the final.

7) Grading of HW and Exams

On homework, in-class quizzes, and exams you must **show all your work** in complete detail to receive full credit. Solutions should show your step-by-step, logical process used to obtain the solution. No credit will be given if no work is shown even if you obtain the correct answer to the problem (accidentally or not). Solve the problems algebraically before “plugging in” numerical values (in most cases). Be certain to include the appropriate units with your answer.

Note: If there is a dispute in the grading of any exam homework, quiz, or exam I will consider looking at them a second time only if it is handed back to me within 2 school days after I return them, and if there is a neatly written appeal.

C) Calculation of Grade:

Please keep a record of all of your grades as this will make it easier for me to assess what your current grade in the class is.

Final:	30 %
Test s	40 %
Labs:	20 %
HW:	10 %

The calculated percentage will be rounded to the nearest whole number. Letter grades will be determined as follows:

A+: 96-100% A: 92-95% A-: 89-91%

B+: 86-88% B: 82-85% B-: 79-81%

C+: 76-78% C: 65-75%

C- grades cannot be given at Deanza

D: 55-64% F: 0-54%

The grading scale shown above is firm. Although unlikely, all tests and assignments may be curved, slightly, to reflect this scale. Being close to a grade does not entitle a student to that grade (88.4% is a "B+", 88.5 % is an A-).

D) De Anza College Academic Integrity and Cheating Issues

The following types of misconduct for which students are subject to disciplinary sanctions apply at all times on campus as well as to any off-campus functions sponsored or supervised by the college: cheating, plagiarism or knowingly furnishing false information in the classroom or to a college officer. Copying another student's work or problem solution, or copying from a "solution manual" both fall into the above categories and may result in disciplinary action. In addition to the above, a grade of zero points will be assigned to any work if a student has been found cheating on it.

E) Things to do to give yourself a good chance of doing well

- a) Make sure that you have the necessary math background.
- b) **Make time to do the homework.** It is extremely rare for a student to be able to do well in physics without putting in practice time with the HW.
- c) **Attend every class** as it is difficult to learn physics without an interactive dialogue with an instructor who can help you understand the particular difficulties (conceptual or operational) that you are having.
- d) **Read the chapter before you come to class and take notes on things you don't understand while reading.**
- e) Realize that Physics is based on key principles that build upon each other, and the reasoning that follows from them. You cannot succeed by trying to memorize certain procedures or equations; it just won't work. So read the text and listen to lectures with this in mind.
- f) Do not allow yourself to fall behind as the situation will likely get progressively worse
- g) Ask questions in class when you don't understand and take advantage of any office hours that are set up
- h) Plan your schedule so that you have enough time to do the class.
- i) Take advantage of the well organized Math / Science Tutorial Center, EOPS, and the Student success and retention program.
- j) Work with other students so you can share their insights. (Be mindful however of the plagiarism and cheating (see above).

F) Other Resources

You may choose to look at these other texts which cover the same material. You'll need to look at calculus based texts however.

Alternate Texts:

- a) Wolfson & Pasachoff, Physics for Scientists and Engineers with Modern Physics, vol. 1, 3rd edition (ISBN 0-0321-3574-7)
- b) Serway, Physics for Scientists and Engineers with Modern Physics, vol. 1, any edition.
- c) Halliday and Resnick