

A) General information

Physics 50 Winter 2016

Instructor: Ronald Francis

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Office: E34A

Office Hours in S43 (tutorial center). I will sit in the tutorial center and make myself available at the times indicated below.

Monday 2:30 to 3:00

Tuesday 11:30am to 12:30am, 10pm to 10:30 pm online

Wednesday 2:30 to 3:00

Friday 12:30 to 1:30, 2:30 to 3:00

Students can also email me any time (usually evening works well). I'll often respond within an hour and a half or so

Student Success center:: <http://www.deanza.edu/studentsuccess/>

Deanza College has excellent tutoring services and I highly recommend that every student get regular tutoring if she / he needs it, .. or even if you don't need it. I will also try to set up group tutoring session by asking about the times that they are available. The tutorial center in S43 can often find a tutor for a group session. During summer session tutors may not be available

Non-discrimination policy:

My belief is that any and every person is capable of learning physics regardless of any personal, cultural or physical characteristics. I won't tolerate attitudes or behaviors that are classist, racist, sexist, homophobic or otherwise discriminatory in class. We shall attempt to use gender neutral language and respect the fact that people of different backgrounds can bring unique and useful perspectives to every discipline including physics.

In teaching I will use clear English spoken at a slow-moderate pace and often avoid idiomatic expressions. Terms that may be unfamiliar will be explained.

Class length and times

Length of class: 11 weeks

Lecture Hours: MTWTh 12:30 to 1:20

Textbook and pre-requisites:

If you are unable to purchase a textbook, then you should know that it is possible to do the class without buying the textbook. Most students will benefit from reading some textbook to reinforce ideas introduced in class. Any text is sufficient.

The official class text is PHYSICS 4th Edition Vol. 1 by James S. Walker. You can use an older or newer text but problems for 7 HW assignments will be given from the 4th edition. I will provide the questions for those students who do not have the 4th edition, or any text.

Prerequisites: Advisory: Mathematics 49B and Physics 10.

Overall description of class (attendance, quizzes and tests):

1) There will usually be 1 quiz every week at the beginning of class approximately 5 to 10 minutes long. Quizzes will be on material covered in previous three lectures. There are two midterms and a final.

2) Students are expected to be on time for every session. Every two tardies (latenesses) – for any of the sessions - counts for one absence and only 4 absences are allowed. Students will be dropped from the class if they any combination of absences and tardies that add up to 4 absences. See attendance section below for details.

3) Save all of your quizzes, essays, exams etc... so that you have a record of the grade.

4) You are responsible for recording all of your grades in a single spot so that you can calculate your “current” grade at any time in the course.

Exam dates:

Please reserve these dates; there are no make-ups

Final Exam : See school calendar;

Midterm #1: Tues. February 2nd 50 minutes

Midterm #2: Wed. February 24th 50 minutes

Reserve the Final Exam Date NOW ! No make-up finals or alternative dates will be allowed

Other important dates:

Students should see their own personal “My Portal” webpage for important dates like the last day to add and withdrawal dates. Here are a couple of key dates:

Last Day to Add or Drop (with no grade record): (Check school website for date... usually about 10 days into the quarter)

Students who have not added a class by this date will not be able to remain in class – no exceptions! Even if students have an add code, the code will expire after that date, and they will not be allowed to register! There is no grade of record issued for students who drop on or before this date. Such drops do not count towards the “three attempts” limit. Students who do not drop by this date must receive a grade, which could be a “W” (withdrawal). “W”s now count toward the “three attempts” limit.

Last Day to Withdraw with a “W” (Check school website for date... usually about 8 weeks into the quarter)

A students who do not withdraw on or before this date must receive a letter grade, but cannot receive a “W”. A students should evaluate her/his status before this date – if a student is not doing well, neither the student nor I will be able to withdraw the student after this deadline. Withdrawing from a class is the responsibility of the student and you must do it before the deadline.

B) Course Goals:

Students should be able to

- a) identify and use fundamental ideas to answer conceptual questions clearly
- b) systematically use fundamental equations that are useful in solving problems.

Description of the course

The class will consist of lectures, and collaborative work among students. It is important to obtain and understand all class notes as not all of the material in the class is in the text and **usually ½ of the problems on the quizzes and midterms will involve material that was discussed in class in detail.**

It is important to review notes nightly in order to identify items that you do not understand. Your Lecture Review assignments will help with this task. If you don't understand what is happening in class, then get help from someone including possibly the instructor.

If you do not know well the material covered during class, then you are unlikely to do well on quizzes and tests. The textbook should be seen as one of many resources that supplement class instruction; knowing the textbook problems is only part of being prepared.

Students are expected to know the fundamental principles discussed in class. Students must be able to use the fundamental principles to do any proofs (of important results) that are done in the text or in class.

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 is, at any time in the class. You should be able to calculate your own "current" grade using the chart below.

Final:	42 %
Midterms (2 x 9 %)	19 %
Quizzes	17 %
Labs	0 %
Question on Lecture	0 %
Practice and Lecture Review	12 %
Chapter Outlines	3 %
HW for Effort	4 %
HW for Content	3 %
HW Bonus	2%

D) Materials Needed

- 2 composition-style unruled notebooks (see website for sample)
- 1 other notebook with unruled or ruled paper (can be a spiral if you like)

Unruled means that there are no horizontal lines in the page; each page is blank white paper.

Straight Edge, Calculator. Also helpful are Protractor, Circle Template, Regular white copy paper for doing HW and other assignments that are collected.

(Calculators are not allowed on any quizzes, midterms or the final. They can be used on HW, PR, Lab and other class work.)

A 3 ring binder loose-leaf notebook is very recommended, but not required, to help organize homework, handouts, lecture notes, etc. When I was in school I did work on blank white paper and then used 3 hole punch to put it into the notebook. 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 (but you can use any notebook for your own personal lecture notes that I will not inspect).

E) Practice and Lecture Review (PLR) Notebook

Each student will have a separate Practice and Lecture Review Notebook. This notebook is for your Practice assignments and your daily Lecture Review assignments. The composition-style notebook cannot have any ruled lines in it – it must consist of blank white paper. This notebook is separate from any lecture notes that you may take for your own personal / private use. (I do recommend that you take notes during lecture in your own personal / private notebook)

Practice assignments:

Some practice assignments are done in Class (PC assignments) and some are done at Home (PH assignments). For your course grade, PC assignments are worth 1/3 of PH assignments. PH assignments are given to students by email, and are done at home. Usually 48 hours lead-time is given to do PH assignments, but occasionally only 24 hours will be given.

After each short 15 to 25 minute lecture that I give, students will engage in “Practice in Class”. Each Practice assignment must be labeled at the top of a page like this “PC 10/4/15”. Practice at Home assignments are labeled like this “PH 10/9/15”. The label must be placed in a non-colored box. (see website for sample). There is a 25 % deduction for work that is not labeled at the TOP of the page. The clear label allows me to grade the work efficiently.

Lecture Review assignments:

You are required to do Lecture Review assignments daily (in your PLR Notebook) based on the lecture given that day. It is only on midterms and final exam that you do NOT do your daily Lecture Review: all other days you are required to do a Lecture Review. The assignment must be labeled at the top of the page like this “LR 10/4/15” **in a colored box**. There is a 25 % deduction for work that is not labeled properly. See website for sample.

Description of Lecture Review assignment:

Each Lecture Review assignment has two sections (NAR and EX) and should be at least two pages. The word requirement is 100 words per 10 minutes of lecture:

a) NAR == Narrative. Section:

Approximate 200 words (for a typical 20 minute lecture). This section consists of a narrative (short story) about the lecture using only words (NO equations, symbols or other codes are allowed; there is a 10 percent penalty for each equation that appears). You write the narrative as if you are explaining the ideas to a random person that you might meet at a bus stop.

These narratives are intended for you to capture and discuss (mainly journal style) essential physics ideas. Equations or other mathematical formulations are NOT ALLOWED !! in these narratives. The narrative should be a place where you can write “freely” about the relationships of nature (known as the laws of physics).

b) EX == Example Section:

An Example of one of the key ideas, laws of nature, or other statement made in lecture. In this section you must come up with your own example (you CANNOT use examples very similar to ones used in class and just change the numbers for example !!) The example can involve numbers but does not have to involve numbers.

All sections (NAR, EX,) must be labeled (Put a circle around the section headings NAR or EX)

Your notebook must be kept neat. There is a 15 % deduction for each of the following

- a) assignments that are very messy
- b) assignments that are falling out of the notebook
- c) assignments that are not stapled in correctly (see website for example)
- d) any paper that is showing outside of the perimeter of the notebook.

F) Chapter Outlines (hand written)

You are required to do a 2 sides (one page) of a chapter outline for each chapter and submit it when it is due. (Two sides of one page is the minimum requirement). You can use more pages if you need to and pages must be stapled if you use more than one physical page.

You must use blank white regular size copy paper; there is a 15 % penalty for the wrong paper. It must be a minimum of 300 words (most students do about 500 words and 3 pages). You can include diagrams but this is not a substitute for the word requirement.

Try to create structures that help you organize the material (charts, flowcharts, Venn diagrams, table, arrows etc.)

G) Homework

It is critical to do all of your HW and Practice assignments. The attention you give to the assignments is crucial to your success in this course. Doing physics is a skill that you develop, and practicing the skill is necessary.

i) Textbook Questions and Problems: (see assignment calendar on website)

In each chapter you will be given approximately 7 Qualitative conceptual Questions that require a clear written explanation and approximately 7 Quantitative Calculation Problems that require a mathematical solution. Qualitative conceptual questions are more challenging and are more important than quantitative "calculation" problems (it's because you have to have "true" understanding in order to answer a qualitative question whereas a quantitative question allows you to "fake" your way through to an answer. See assignment calendar on website for the weekly textbook HW assignment.

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 final answers to the odd HW problems are in the back of the text. We will not have much time in class for going over HW problems; see a tutor or email me for help if you get stuck on a HW problem.

ii) Format of HW (for both conceptual questions AND quantitative problems)

a) Questions are to be done on **BLANK white copy paper (no ruled lines on the paper)**.

Divide each paper that you use into two vertical columns.

Start each problem at the top of a vertical column. (see sample HW on website)

b) **Each question / problem must be accompanied by a well-labeled physical diagram.**

Important ! :

HW questions or problems without a rough physical diagram will not be accepted and the HW score for that question or problem will be a zero.

Very infrequently there may be a question that makes no physical reference (question does not mention any physical object like a sled, dog, book, electric field, engine, ocean, person, table, rocket etc...). In those cases create your own physical situation.

The diagram of the physical situation makes your homework more useful as a stand-alone document that you can review without having to refer to the text. The diagram also helps you make connections between fundamental ideas and physical situations – often the first and critical step in solving a problem. See sample HW

The diagram may **NOT be an abstract mathematical diagram (like a vector diagram, graph, or free-body force vector diagram)**. It must be a diagram of the physical situation of objects/fields being considered.

iii) Additional requirements for Conceptual Questions:

If the question is conceptual, then give a complete explanation of your answer in the following way:

A) First give a short basic answer to the question like “left” or “c)” (for multiple choice) or “increases”, or “that’s not possible” etc.

B) Then give an explanation Using Fundamental Principles or Definitions. (UFPD)

In answering a question, start from fundamental principles or definitions and then make a logical argument to complete the explanation. Sometimes a question can be answered by using a proof by contradiction.

Your ability to answer qualitative questions is the “real” measure of your understanding. You may want to see if you can tell your explanation to a friend / parent / fellow student in order to gauge if your answer makes any sense.

iv) Additional requirements for Quantitative Problems:

a) present the given information,

b) Establish coordinate system (+x, +y, and +z as needed, and location of origin)

c) Begin with fundamental principles. You can also use important results from fundamental principles but at least acknowledge the fundamental principle. For example: if you decide to use Bernoulli’s equation for a fluid flow problem then you should acknowledge that Bernoulli’s principle comes from the Work Energy theorem.

d) write one equation under the other as you apply various physics principles or mathematical steps

e) put a box around your final answer for each part (like a), b) , c) etc..) of the question.

Usually, at least a full ½ page column is needed for each problem. There is a sample HW on my website so that you can see the allowed format.

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

There is a 15 % penalty for each aspect of the required format that is not followed.

v) How to turn in HW and other Assignments:

Assignments (HW, chapter outlines, PRL Notebook) will be due at the beginning of lecture class. You must submit it on my desk at the beginning of class (first 5 minutes) preferably during class announcements (announcements are given at the beginning of every class and are usually finished 1 to 2 minutes after official class starting time). Do not interrupt the instructor.

Late to class: If you are late to class then it is your responsibility to discretely drop the assignment at my desk (near front of class) as soon as you enter the class (so that you get no advantage as HW problems may sometimes be discussed in class). “Discretely” means that you should not walk between a speaker and an audience as this is considered inappropriate or even rude.

vi) Penalties for not turning HW or other assignments ontime

Any HW submitted after first 5 minutes, but before end of lecture, is worth a maximum of 70 % credit. Therefore If you think there is a possibility that you will be late, then scan your assignment and send it by email (before class starts) to insure that it is counted as ontime.

If you do not bring your assignment and you tell me at the end of class then you can receive 50 % credit if you email it to me by 9:00 pm. You must then bring in the hard copy the following day with word “LATE” on top. There is an additional 15 % penalty if you fail to write the word “LATE” on top.

If you are absent when an assignment is due (for example: you are sick but have no doctor’s note), or otherwise must be late, then you can scan the assignment (before start of lecture) by email or submit your HW to me by U.S. mail postmarked before the due time (in order to receive full credit) US mail: Ronald Francis, Deanza College, 21250 Stevens Creek Blvd. ▪ Cupertino, CA 95014

There are no penalties for excused absences. (if you miss a quiz, then your average quiz score will be substituted for that quiz grade).

HW submitted on a date after the due date will not be accepted.

vii) Grading of HW

Approximately 50 % the HWs will be collected and graded. 2 will be graded for content and the remainder will be graded for effort. You will not be told in advance which of the HWs will be graded.

You do not have to copy the questions to get full credit but a **physical diagram is required** for each question / problem. (see above for required format). There is a 100 % penalty for any question or problem without a physical diagram.

HWs that are graded for content will receive 40% for overall effort and 60% for the content and effort of 2 to 4 specific questions / problems selected by the instructor. You will not be told which questions on each assignment will be graded however, so do all of them if you want a chance to receive full credit.

Conceptual Questions on the HW are usually more difficult for students (since they require “true” understanding) and will have equal or greater weight compared to problems. All questions and problems require an analysis using fundamental principles or definitions (UFPD).

Make a serious effort in answering conceptual questions and get help if you can't answer.

Put your name in the upper right side of the assignment.. **(An assignment or quiz without a name will lose 15 points automatically)**

Assignments must be stapled together in upper left square centimeter of the page (see website) in order to make reading of the assignment possible). Unstapled HW or improperly stapled HW results in 15 points off.

viii) Homework Excellence Final Course Grade Bonus

Any student who submits every homework and get a 70 % score (or higher) on each homework receives a **2.0 point** bonus on the final grade for the class. A student who averages over 75 % gets a **1.5 %** bonus on final grade for class. Students can get either 2 % bonus or 1.5 % bonus (not both)

H) Laboratory work (there is no lab work for physics 50)

I) Questions on Lecture (QL) assignments (There is no QL for physics 50)

J) Attendance and Tardiness

You are expected to be here at the beginning of each class, every day, for the rest of the quarter. If you must be absent then provide physical documentation to have the absence excused (see below).

If you are going to be absent (excused or not), you must inform the instructor prior to coming to class. **If you do not inform the instructor, prior to start of class, then the absence counts as 1.5 absences (instead of 1.0).** If you are unable to make it to class ontime, on a regular basis, then you probably would do much better and be less frustrated in another class.

Attendance will be recorded on most days but not every day.

If you are late to class, then sign the late clipboard. Lateness counts for 0.5 absences.

A “sign in” sheet (on a clipboard) will sometimes be used to keep track of attendance. If you come late then it is your responsibility to sign the “sign in” sheet at the end of class

Quizzes, in-class PRs, and lecture notes, will sometimes be used to keep track of attendance.

Picking up graded quizzes will also be used to keep track of attendance; if you pick up your quiz then I know you were present. (you are only allowed to pick up your own quiz)

You are responsible for picking up your graded quiz / practice notebook / homework / outline at the beginning of each lecture period. **If you fail to pick up your work then your score is reduced 15% for each day that you fail to pick it up** (unless you have an excused absence) and you will also be marked as late.

What should a student do if she/he is late to class ?

Do not interrupt the instructor. Discretely (don't walk in front of an instructor who is addressing a class) drop off any work that is due at the small desk at the front of the class and take your seat ! Pick up your papers at the end of class

You must be present for 80% of a class to be given credit for attending (you cannot leave early and still receive credit for attending).

If you have more than 4.5 unexcused 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. If you miss 3 of the first 9 days of class then you will be dropped. You cannot be absent for the final exam and you must take the final exam in order to pass the class.

Under no circumstances (excused absences or not) can a student miss more than 8 classes and still pass the class.

K) Waiting List and Adding into the class.

If you are on the waitlist and/or not yet enrolled in the class, then your absences and tardies count for 50 % compared to students who are enrolled. Other penalties associated with not being present because of not being registered are also 50 % . (missed quiz for example only counts for 1/2 of a zero and not a full zero).

I will accept 3 students over the class limit up to the end of the second week. Please note that usually 3 to 5 students will drop the class during the first two weeks.

L) Midterms

There will be 2 midterms in this class. The midterms will consist of multiple choice questions as well as "free response" questions and problems. No calculators will be allowed in order to guarantee that everyone has an equal chance at the exam; learn to approximate answers using basic arithmetic.

The lowest of your 2 midterms grades will be given 1/2 of the weight of the other midterm when calculating your midterm average.

There will not be make-up midterms. If you miss a midterm and it is unexcused (see below) then the score is a zero. If you miss a midterm and it is excused (see below), then the weighted average of your final exam (final with 2/3 weight) and other midterm score (1/3 weight) will be your score for the missed (excused) midterm. To pass the class you must take at least one of the midterms and the final exam.

If you are tardy for a quiz, midterm or final, you will not be given additional time.

No calculators will be allowed for any quiz, midterm or final. Calculators are allowed for the lab final.

M) Quizzes

There will be 10 to 15 short quizzes (about 1 per week) in this class of about 5 minutes each at the start of class. Quizzes are usually announced but may not be. Quizzes emphasize material in the prior 3 days of class. There will not be make-up quizzes. If you miss a quiz and you are not excused (see below) then your score is a zero. If it is excused (see below) then the missed quiz grade will be the average of your other quiz grades. The lowest of your quiz grades will be given half the weight as the others.

Quizzes without a name lose 15%.

There may also be “book quizzes” where you will be asked to read a certain section and be quizzed on it for basic information even before the material is presented in class.

N) 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. You must bring a photo ID to the final exam and show it to the instructor during the test if asked. If you are late to the final then you will NOT be given additional time. No calculator is allowed on the final. You are only allowed a pencil/pen and a straight edge like a ruler.

If the final exam cannot be taken because of extraordinary circumstances (earthquake / power outage etc...and cannot be rescheduled), then your highest midterm grade will be used for final exam grade

O) How work will be graded (HW, Quizzes and Tests)

On homework, in-class quizzes, midterms and final, you must **show all your work** to receive full credit. You must show logical steps Using Fundamental Principles or Definitions (UFPD). This includes qualitative questions – do not simply restate the question or leave out critical thinking steps.

Usually work will be returned within one week. If you need to use material that you are submitting, then copy the work prior to submitting so you can use it even if I still have it.

Your work must be distinguishable from a student who guessed.

Do not give more than one “answer” as the grader will not choose the correct answer out of two answers for you ! If you put down two answers, you automatically lose 75 %.

Solutions should show your step-by-step, logical process (starting from fundamental principles) 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). Usually you will solve the problems algebraically before “plugging in” numerical values... but sometimes it is worth it to plug in numbers for an intermediate step. Be certain to include the appropriate units with your answer and proper significant figures.

Note: If there is a dispute in the grading of any exam homework, quiz, or exam I will consider looking at it a second time only if it is handed back to me within 2 school days after I return it, and if there is a neatly written appeal. You cannot make an appeal immediately after a quiz is given back to you.

P) Letter Grades for the course

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

A+: 97-99% A: 93-96% A-: 90-92%

B+: 87-89% B: 83-86% B-: 80-82%

C+: 77-79% C: 65-76%

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. Being close to a grade does not entitle a student to that grade (89.4% is a "B+", 89.5 % is an A-).

Q) 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.

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

- a) 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.
- b) Make time to do the assignments. It is extremely rare for a student to be able to do well in physics without doing assignments.
- 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. Learn your class notes well; the course emphasizes material covered in class especially on quizzes
- d) Read the chapter before you come to class and take notes on things you don't understand while reading.
- e) Make sure that you have the necessary math background.
- 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).

S) 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:

Knight, Physics for Scientists and Engineers

Giancoli, Physics

Hewitt, Conceptual Physics

Holt (Publisher), Physics

Feynman Lectures on Physics

Walter Lewin video lectures and other online lectures

T) Definition of Excused Absence:

A class, lab, or test is excused if

- a) you inform the instructor before 8am of the day of the class AND
- b) you have a doctor's note, a legal notice, a death in the family, 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 coming to class would have caused a great or irreversible hardship to the student.