

## A) General information

Physics Summer 20

Distance Learning Class (DLC) Physics 10

Instructor: Ronald Francis

PHD in Experimental Physics: (MIT).

Thesis topic: Dynamic light scattering in 2D melting transition of colloidal crystals

BS in Applied Physics (Caltech).

Advanced classes in statistical mechanics, quantum mechanics and fluid mechanics.

Additional classes in theory of education

Instructor of AAPT New England Region Physics Bowl Champions (2 separate years)

Email: francisronald@deanza.edu

Homepage: used to be <http://nebula.deanza.edu:16080/~ronald/> .... (probably not working)

Office: E34A Due to pandemic I won't be there. ( I'm not there very often anyway...too far away from everything)

### Live lectures schedule and Office Hours Online

Office Hours online zoom session

Mon 12:00 - 1:50 (2hours) \*\*\*\*\* Office Hours: 2:00 to 2:25

Tues 10:30 - 12:20 (2 hours) \*\*\*\*\*Office Hours: 12:30 to 1:15

Wed 10:30 - 11:20 (1 hour) \*\*\*\*\*Office Hours: 11:30 to 1:00

Thu 12:00 - 1:50 (2 hours) \*\*\*\*\*Office Hours: 2:00 to 2:25

Fri 10:30 - 12:20 (2 hour) \*\*\*\*\*Office Hours: 12:30 to 1:15

Students can also email me at any time (usually evening works well). I'll often respond within 24 hours

### Length of this syllabus

This syllabus is a little long but it is not complicated. The class rules are straightforward, and make sense once you get the hang of it. Part of the reason it is long is because it is attempting to be very clear or it is attempting to cover many possible situations (reducing personal biases) in order to be fair. So do not "stress out" about the syllabus; just read it, follow the basic rules and you'll be fine in most cases.

**The main points are in bold below. If you can't read the whole thing now (should take 10 minutes maximum) then read the bold parts at least....** but you should read the whole syllabus which is a binding contract between the instructor and you.

**Your first quiz will include simple questions about the essential points in syllabus (mainly bold items)**

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

Deanza college has 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. Check this website for online tutoring. There is also something called "Net tutor" which might be helpful.

### 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 unusual will be defined.

### **Textbook and pre-requisites**

You can use any edition of the books listed below, some other equivalent textbook, or no book at all.

Physics 10 uses Hewitt's Conceptual Physics.

Physics 50 uses James Walker's Physics

Physics 2A – 2C series uses Halliday, Resnick and Walker

Physics 4A – 4C series uses Physics for Scientists and engineers by Serway and Jewett.

Physics 4D uses Modern Physics by Serway Moses and Meyer 3<sup>rd</sup> edition

**You are not required to buy any specific textbook but you must use some textbook (or online source) in order to do required** chapter outlines (summaries)... but it could be any equivalent book that you like (or is inexpensive) or is online. Textbook HW assignments from the "official" textbook will be made available to you at the library or by email as pdfs.

### **Basic Short Overall description of class (attendance, quizzes and tests):**

- 1) There will usually be 1 to 2 short (approximately 10 minutes) quizzes for every 4 hours of lecture. The quizzes are assigned for a window of time (approximately 6 hours) and students upload image files or pdf files online. Quizzes will be on material covered in previous three lectures, and recent readings, and focus on a topic that you will be informed about. There are two midterms and a final.
- 2) Every absence after the 2nd absence results in a 2-point deduction on the final course grade. (Attendance is based on completion of Lecture Review and PC work which is assigned for each lecture.
- 3) Save all of your quizzes, essays, exams etc... so that you have a record of your grades and in case I accidentally make a recording error and need the graded work a 2<sup>nd</sup> time.
- 4) You should record all of your grades in a single spot so that you, or I, can easily estimate your "current" grade at any time in the course. There is a worksheet to help you estimate your grade.

### **Exam dates:**

Please reserve these dates; there are no make-ups There is a 6 hour window of time to complete these assignments.

Final Exam : Last Thursday of Class with raindate Friday (6 hour window)

Midterm #1: Tuesday of week 3 (6 hour window)

Midterm #2: Tuesday of week 5 (6 hour window)

Withdrawal Date: see school calendar

### **For summer 8 week classes only (not for Summer 2020 classes)**

If you are unable to attend the last few days of class due to other academic commitments, then please let me know ASAP so that arrangements can be made

### **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 or about 7 days if a summer class)

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 or about 5 weeks if a summer class) 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:**

Critically examine new, previously un-encountered problems, analyzing and evaluating their constituent parts, in order to construct and explain a logical solution utilizing, and based upon, the fundamental laws of physics

For classes with lab (physics 2 and 4 series): In order to test lab skills students are expected to gain confidence in taking precise and accurate scientific measurements, with their uncertainties, and then with calculations from them, analyze their meaning as relative, in an experimental context, to the verification and support of physics theories.

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.

### **Basic description of the course**

The "lecture" time will consist of formal instructor-led lectures, as well as 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 90% of the problems on the quizzes and midterms will involve material that was discussed in class in detail.**

The instructor's class notes will be recorded in zoom

It is important to review notes nightly in order to identify items that you do not understand. If you don't understand what is happening in class, then make a special note to yourself (in a right hand column) in order to get help from someone including possibly the instructor.

If you do not understand very 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 some problems / ideas from the textbook problems is only part of being prepared.

The class lectures are the primary vehicle for learning; the text is secondary. About 15 % of class material is not covered in the textbook.

**Students are expected to learn and understand how to use the fundamental laws and theorems / principles discussed in class and also how to derive any theorems / principles. Note: fundamental laws CANNOT be derived (proven) by other ideas or laws (that is what "fundamental" means). Students are also expected to know and understand the human definitions used by physicists to describe nature.**

### **C) Calculation of Grade and Materials needed**

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 estimate your own "current" grade using the chart below.

Final: 14 %

2 Midterms total 16 %

Quizzes 38 %

Practice and Lecture Review Notebook 14 %

Chapter Outlines 3 %

HW for Effort 15 %

HW Bonus 2%

absences (not doing LRME or PC work counts as an absence)

There is no “extra” work that can be done at the end of the class to try to improve your final course grade. It is also considered inappropriate to pressure instructors to give a grade that is higher than the grade that was earned based on the charts above.

### **Materials Needed**

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

### **NO TYPED WORK IS EVER ALLOWED IN THIS CLASS.**

**Students must be able to submit clear, legible, copies (see canvas in “files” on image quality).**

**If your handwriting in cursive is unreadable, then you may be asked to print in larger letter.**

### **D) Daily Lecture Review and My Example (LRME) assignments**

a) Lecture Review assignment

The LRME work is done on a single page and can be an image file (png or jpeg) or pdf.

The Lecture Review (LR) is a 150 to 200 word summary of key ideas from lecture and question / problems done during the lecture. The process of reviewing in your own words the key ideas will help you to understand them (and remember them) as you build a scaffolding in your brain for the structure of the laws of nature.

You often should take notes on how a question is analyzed or how a problem is solved. Just knowing the laws of physics is not enough; you must also take notes on how to use them.

**After writing your LR on the top 2/3 of the page, you then write your “My Example” on the remaining 1/3 of the page.**

In the “My Example” section you think of a physical situation that you have either experienced or created in your mind, and you i) pose a question / problem and then ii) answer it using the ideas / definitions used in physics. The questions that you pose to yourself do not have to be mathematical, in fact usually they are not; try to think of physical situations in your own life experience.

**Both the 150 words Lecture Review (LR) and your "My Example" (ME) go on one piece of blank white paper. Submit as a single page image file (png or jpeg)**

The “My Example” assignment will help you to internalize the ideas since it represents meta-thinking.

If your cursive handwriting is below average in terms of clarity, you may be required to print.

**You do an LR and an ME for both the 1<sup>st</sup> half and the 2<sup>nd</sup> half of the lecture.**

2) When this assignment is due:

All Assignments are going to be 15 minutes before my live zoom lectures. You are not required to attend but are encouraged to attend.

**E) Practice In Class and Practice at Home work.**

**PC: Practice in Class:** These assignments are practice questions/problems that are started in class often but not always with one other student. These questions/problems may sometimes be done in “breakout rooms” These assignments must be completed at home and are due the next day.

**PH: Practice at Home.** These assignments are questions or problems that are assigned either in class or by email, and are due at the stated time. Students are usually given approximately 48 hours to do Practice at Home assignments but occasionally only 24 hours.

**Textbook HomeWork assignments (THW) are different than Practice in Class and Practice at Home assignments; THW assignments come from the textbook and are done separately Chapter Outlines (CO) assignments are also done separately.**

### **1) Practice assignments:**

Some practice assignments are done in Class (PC assignments) and some are done at Home (PH assignments). Most are done in class. For your course grade, PH assignments are worth 2 to 4 times the value of PC assignments. PH assignments are given to students by email, or in class, and are done at home. **Usually 48 hours lead-time is given to do PH assignments but occasionally only 24 hours will be given especially for summer classes which are more concentrated.**

#### **a) Practice in Class (PC assignments) are 100 points each**

After each short 15 to 25 minute lecture that I often give, students will do “Practice in Class” questions and problems. Each practice assignment must be labeled at the beginning in a BOX like this “PC 6-7-20 Thurs” There is a 15 % deduction for work that is not labeled properly (because it makes grading really difficult). The clear label allows me to grade the work efficiently. Often PC assignments started in class will not be finished in class. In those cases, the work must be finished at home before the due date which is the next day prior to live lecture time. (see canvas for due times and dates)

#### **b) Practice at Home (PH assignments) are 200, 250, or 300 points.**

These will be assigned either in class or by email and are due at the stated due date. (Usually I give these assignments at least 48 hours before they are due. Occasionally only 24 hours will be given especially for summer classes which are more concentrated.

**Your first PH involves answering 4 of 13 random physics questions. The assignments are labeled like this “PH 6-15-20 Mon”. The label must be placed in a BOX at the beginning of the assignment. There is a 15 % deduction for work that is not labeled. The clear label allows me to grade the work efficiently.**

**Submit the work as a pdf**

#### **F) Chapter Outlines (COs) (a summary of the main ideas in the chapter)**

The chapter outline is basically a summary of the main ideas in the chapter organized in any way that makes sense to you. Feel free to make charts, diagrams, flowcharts, venn diagrams etc... the must be hand-written (no computer) on blank sheets of paper (no lined paper) .

Submit the work as a pdf in canvas.

You are required to do a minimum of 3 sides of paper (3 completely filled ! pages) for each chapter and submit it when it is due. You will be told the due date during class announcements in canvas.

You must use unruled 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.

#### **G) Textbook HomeWork (THW)**

These assignments will be emailed to you in advance (at least 3 days) and you will be given a due date.

**Submit the work as a pdf in canvas.**

It is critical to do all of your THW. 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 that skill is necessary. Don't just "do" the homework; instead think about what each problem is trying to teach you and try to organize those things in your own brain if possible, or write down all of these things. Your understanding must improve slightly with each question or problem, or else you aren't really learning (you are just "doing"). It is possible to "do" all of the HW and still not get a good score on a quiz or midterm that involves that HW material.

In each chapter you will be given approximately 8 Qualitative Conceptual Questions (CQs) that require a clear written explanation and approximately 10-20 Quantitative Problems (QPs) that require a mathematical solution. CQs are more challenging and are often more important than (QPs), because you need 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 by using some equation).

CQs will count for about 50 % of the grade for the HW. QPs will count for the remaining 50 %.

Your work must be your own. You may consult with students after you have made an attempt to do THW problems on your own. You may not copy another person's THW. Instead, contact them for help, and then do your own work. If your THW has been obviously copied from another person's THW 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 THW problems are in the back of the text. We will not have much time in class for going over THW problems; see a tutor or email me for help if you get stuck on a THW problem.

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

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

See canvas for sample THW format.

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 and do one or more questions / problems in each column (see sample THW)**

b) Each question / problem must be labeled with a circle around the Question or Problem number like this (OQ3) or (P17). Each question of problem must be accompanied by a well-labeled physical diagram. **If there is no diagram of the physical situation, then no credit is given** for the problem.

**Repeat: no diagram means no credit** for that question / exercise / problem.

**The exception is the "Review Questions" in Hewitt's book where a diagram is NOT required**

Physicists use diagrams to build intuition about physical situations and make geometry clear to themselves or other people trying to understand the question / problem involved. Every problem needs a physical diagram for complete understanding.

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, light ray, electron, 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 THW

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 and therefore it must involve matter/energy and or 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) If appropriate, first give a short basic answer to the question like “yes” or “left” or “c)” (for multiple choice) or “increases”, or “that’s not possible” etc.

B) Then give an explanation and try to make an argument from fundamental laws or fundamental principles of physics.

In answering a question, try to **use reasoning that begins with fundamental laws or theorems / principles of physics**. Many people can answer a question and actually NOT understand the reasoning behind their own answers. Sometimes a question can be answered by using a proof by contradiction. Students often do not receive credit for Conceptual Questions because they fail to give a logical argument... instead they just given an answer that could be interpreted as a guess.

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 sense.

**iv) Additional requirements for Quantitative Problems:**

a) present the given information,

b) Establish coordinate system (+x, +y, and +z, and location of origin if needed) and identify any physical systems that principles are being applied to (for example: system can be just a book, or book and earth, or book earth and table,...)

c) Begin with fundamental laws / theorems or definitions.

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.

If you have handwriting that is difficult to read then use printed letters.

**v) How to turn in THW and other Assignments:**

see canvas assignments.

**vi) Penalties for not turning THW or other assignments ontime**

**Any THW that is late, but submitted before midnight, is worth a maximum of 50% credit..**

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

**vii) Grading of HW**

Approximately 30 % the HWs will be collected and graded. 2 or 3 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 greater weight compared to problems.

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..

### **viii) Homework Excellence Final Course Grade Bonus**

Any student who submits every homework and get a 70 % score (or higher) on each textbook homework receives a **2.0 point** bonus on the final grade for the class. (score is 1.7 points if only one assignment is below 70 %). 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 Notebook (for lab classes only)**

### **I) Questions on Lecture (QL) assignments (only for physics 4D)**

### **J) Attendance**

Attendance is critically important in this class.

**Your attendance is verified by the LRME (Lecture Review and My Example) assignments that you do. These assignments require you to either attend live lecture classes or watch the recording.**

**Summer classes:** Points off of final course grade

1<sup>st</sup> unexcused absence 2.0 points

Additional points off for each further lateness or unexcused absence

2<sup>nd</sup> unexcused absence 2.0 points

3<sup>rd</sup> unexcused absence 3.0 points

4<sup>th</sup> unexcused absence 3.0 points

5<sup>th</sup> and more unexcused absence 5.0 points

If you are unable to make it to class ontime, on a regular basis, then you may do better and be less frustrated in a class with less rigid attendance rules.

### **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.

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 20 short quizzes (about 1.5 per week) in this class of about 10 minutes. There will be a 6 hour window of time to take the quiz. Quizzes emphasize material in the prior 3 days of class lecture material. 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 10%.**

#### **N) Final:**

There will be no make-up final. The final is open notes and textbook The final exam will occur on the day before the last day of class with a raindate being the last day of class.

If the class as a whole cannot take the final exam because of extraordinary circumstances (earthquake / power outage etc...and cannot be rescheduled), then your highest midterm grade, will be used for your 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 laws / theorems or definitions. 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 reasoning 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.

Save all of your graded work in case of any lost records of student grades.

#### **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 will be also be given to students between 60 and 64% if a 70 % average is obtained on the THW grade

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-).

Typically 20 % of students will get an A, 30 % will get a B, 35 % will get a C and the remainder will get a D or F grade.

#### **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.

If you are aware of cheating that is occurring, then send an anonymous letter to the instructor.

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

**I may send to you suggestions from previous students about how to do well in this class.**

Also, you should

- 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. Keep asking yourself "what is the fundamental idea here?"
- b) Review Lecture notes and regular HW assignments. It is extremely rare for a student to be able to do well in physics without doing assignments. Ask for help electronically if you don't understand lecture or any 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. Consider reducing your work hours or number of classes.
- 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).
- k) talk to another student who has taken any of my classes

## **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

Khan Academy videos

Walter Lewin video lectures and other online lectures

And many more....

## **T) Excused Absences:**

A class, lab, or test is excused if

- a) you inform the instructor before the next class 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).

**What is an extraordinary circumstance ?**

An extraordinary circumstance would be an absence that you must take because otherwise it would cause a great or irreversible hardship. The instructor determines when an excused absence is considered an "extraordinary circumstance". A wedding or a car accident would be examples of extraordinary circumstances.

**What do if you have an excused absence / excused lateness**

If you are excused from class, that does not excuse you from turning in work that is due that day in class (unless the excused absence prevented you from doing the work.. like a medical procedure... but not like a wedding)

**Making up the missed work**

You have 3 days from the end of the excused absence to make up the work

**Student Learning Outcome(s):**

\*Critically examine new, previously un-encountered problems, analyzing and evaluating their constituent parts, to construct and explain a logical solution utilizing, and based upon, the fundamental laws of physics in general.