# PHYS 2210: Physics for Scientists and Engineers I (Fall 2017)

## SECTION 001/011/021: COURSE SYLLABUS

**Instructors:**

Prof. Kyle Dawson (kdawson@astro.utah.edu); **Office:** 328 INSCC (by appointment)

Dr. Hans Malissa (hmalissa@physics.utah.edu); **Office:** 222 South Physics (by appointment)

**Course Coordinator:** Ms. Mary Ann Woolf (woolf@physics.utah.edu); **Office:** 205 JFB

**Course Marshal:** Nathan Gundlach (gundlach@physics.utah.edu)

**Credit hours:** 4

**Websites used for the course:**

- http://www.flipitphysics.com/: Location for on-line pre-lectures, checkpoint quizzes, and homework.
- http://utah.instructure.com/: Gradebook, General Information, Announcements, Syllabus, etc.

**NOTE:** The first lecture and discussion section of the semester will be cancelled to allow students to view the solar eclipse. Class will meet for the first time on Wednesday, August 23.

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|---|---|---|---|
| **Class Sessions:** | 001: Mon/Wed 11:50 AM – 1:10 PM, JFB 101 (Dawson; discussion separate)<br>011: Mon/Wed 1:25 PM – 2:45 PM, JFB 101 (Dawson; discussion separate)<br>021: Mon/Wed 3:05 PM – 5:35 PM, JFB 101 (Malissa; includes discussion) | | |
| **Midterm Exams:**<br>**80 Minutes**<br>At usual class meeting time and location | **Date** | **Material** | **Room** |
| | *Exam 1 (in class)*<br>Wednesday, September 20 | Linear Dynamics | JFB 101 |
| | *Exam 2 (in class)*<br>Wednesday, October 25 | Conservation Laws | JFB 101 |
| | *Exam 3 (in class)*<br>Wednesday, November 15 | Rotational Dynamics | JFB 101 |
| | *Final Exam:*<br>Thursday, December 14, 2017<br>3:30 – 5:30 pm | Full Course Material | TBA<br>Based on Section |

## Course description and introduction

This course is designed to give science and engineering students a thorough understanding of the basic physical laws and their consequences. Classic mechanics will be introduced, including methods of energy, momentum, angular momentum, and Newtonian gravity. Applications will include mechanical oscillations, sound, and wave motion.

This is an introductory course in Classical (Newtonian) Mechanics. The Physics 2200 sequence is the top-level of the three main introductory sequences. It introduces the basic concepts and theory of mechanics, and you are expected to learn to solve elementary problems by applying these principles. Most students will find this a very demanding course that requires a significant amount of work and study time. For some, this will be the most challenging course you will encounter at the college level. For some disciplines, such as civil, mechanical, and electrical engineering, physics is directly applicable and serves as the introductory course to the more advanced applied physics or engineering classes. For all disciplines for which the 2200 series is required, the problem-solving and quantitative analysis skills you will learn from this course are a critical piece of your broader education.

We will be using the (primarily) on-line system known as *FlipItPhysics*. Among other things, *FlipItPhysics* features on-line pre-lectures that you will be required to view prior to each classroom lecture. On-line access to *FlipItPhysics* costs you about $30 for the semester. For more information on *FlipItPhysics*, go to the website: www.FlipItPhysics.com.

## Course registration and meeting schedule

- To be in this course, you must register for a lecture and a discussion session. Section 021 includes an 80-minute lecture followed by a 70-minute discussion session in both the Monday and the Wednesday meeting times.
- The lecture component of each class period will include interactive questions and discussions, mostly focusing on developing a deeper conceptual understanding of the foundational principles related to that day's unit. On most Mondays, the instructor will present the solutions to one or two homework problems from the previous week's material that gave students trouble. On most Wednesdays, the class will begin with a short quiz (10 for the semester).
- The discussion component of each class period will focus on group problem solving assignments under the guidance of the teaching assistants. There will be no group problem solving during the weeks of midterms. Instead, the first discussion section of the week will be used to review a practice exam and the second discussion section of the week will be used to review the actual exam.
- There will also be a "help lab" in the JFB Rotunda. Hours will be posted on the "pages" link of the Canvas Webpage. Help labs are informal help sessions, typically used for homework assistance.

## Schedule of topics, due dates, and exam dates

We will be covering 24 of the 26 units in FlipItPhysics: Classical Mechanics (we will omit the two units on "Statics"). We will thus be covering about two units per week. Unless announced by the instructor in advance, you will be responsible for **all** of the material in these units. This is the standard curriculum for an introductory semester-long course in physics. The complete schedule of topics, assignments, and due dates may be found below and at the *FlipItPhysics* website; once in the course, click on the calendar link at upper left.

| Week | Monday Lecture | Discussion Section 1 | Wednesday Lecture | Discussion Section 2 |
|---|---|---|---|---|
| 8/21 – 8/25 | Solar Eclipse/no class | | 1-D Kinematics | Group Problem |
| 8/28 – 9/1 | Vectors and 2-D Kinematics | Group Problem | Relative and Circular Motion | Group Problem |
| 9/4 – 9/8 | Labor Day | No meeting | Newton's Laws | Group Problem |
| 9/11 – 9/15 | Forces and Free-Body Diagrams | Group Problem | Friction | Group Problem |
| 9/18 – 9/22 | Work and Kinetic Energy | Practice Midterm | Midterm 1 | Review Midterm |
| 9/25 – 9/29 | Conservative Forces and Potential Energy | Group Problem | Work and Potential Energy: Part II | Group Problem |
| 10/2 – 10/6 | Center of Mass | Group Problem | Conservation of Momentum | Group Problem |
| 10/16 – 10/20 | Elastic Collisions | Group Problem | Collisions, Impulse, and Reference Frames | Group Problem |
| 10/23 – 10/27 | Rotational Kinematics and Moment of Inertia | Practice Midterm | Midterm 2 | Review Midterm |
| 10/30 – 11/3 | Parallel Axis Theorem and Torque | Group Problem | Rotational Dynamics | Group Problem |
| 11/6 – 11/10 | Angular Momentum | Group Problem | Angular Momentum Vector and Precession | Group Problem |
| 11/13 – 11/17 | Simple Harmonic Motion | Practice Midterm | Midterm 3 | Review Midterm |
| 11/20 – 11/24 | Simple and Physical Pendula | Group Problem | Harmonic Waves and the Wave Equation | Thanksgiving |
| 11/27 – 12/1 | Waves and Superposition | Group Problem | Fluid Statics | Group Problem |
| 12/4 – 12/8 | Fluid Dynamics | Group Problem | Review for final | Practice Final |

- **Prelectures and checkpoint quizzes (24):** These are done at the *FlipItPhysics* website and are due on Mondays and Wednesdays at 7am.
- **Homework (24):** All homework will generally be due weekly on Sunday nights at 11:59 pm. Since we cover two FlipItPhysics units per week, there will usually be two homework sets due each Sunday following the days the material is covered in class. Each unit's homework set is worth 5 points in total. Homework is worth 100% of the total points if completed by the first deadline. There is a second deadline for all homework that is exactly one week after the first deadline. Homework completed by the second deadline can still earn 80% credit; that is, the maximum score is 4 out of 5. There is no other provision for accepting homework beyond the second deadline date, no exceptions.
- **Group Assignments (20):** These are completed during the discussion sections (see above). In the first discussion section prior to a midterm exam, there will be no group assignment but rather the TAs will review the practice midterm exam. Similarly, the discussion section immediately following a midterm exam will be used to review/recap the actual midterm exam. Each post-exam review is worth 4 bonus points. You get three free passes on group

assignments – only your best 17 will count toward your grade (see below).

- **In-class quizzes (10):** These will be given every Wednesday during the lecture period, except the first week of class, the last week of class, and on midterm exam weeks. Your lowest quiz score will be dropped (see below).
- **Midterm Exams (3):** Covering material from Units 1-6, 7-13, and 14-20
- **Final Exam (1):** Based on Section meeting time, see Table on page 1.

## Textbook and Other Course Materials

There is a small softbound booklet that accompanies the on-line course, ***FlipItPhysics: Classical Mechanics*** (formerly called smartPhysics) by Gladding, Selen, and Stelzer, ISBN-13: 978-1-4292-7240-7. My course officially requires this booklet as a textbook, which retails for about $15-$20 (e.g., on Amazon), but everything in it is also accessible on-line. It is up to you whether you want to buy a paper copy. There will be about 50 copies of the book with a bundled access card (which covers the cost of on-line access, as well) available in the campus bookstore. On-line access alone will be available through the *FlipItPhysics* website for $39.99 (there is a free 30-day trial period) and the booklet alone is also available through the usual internet sources. There are obviously several ways to obtain the needed course materials; how you do so is up to you.

If you would like to have a supplementary physics textbook that has a bit more detailed content, worked-out examples, and practice problems, then I can recommend the following books which I have reserved (along with some others) at the Marriott Library:

- R.D. Knight, Physics for Scientists and Engineers, 2nd edition (Links to an external site.) (Pearson Addison-Wesley, 2008, ISBN#: 9780805327366)
- Serway and Jewett (Links to an external site.)
- Tipler and Mosca (Links to an external site.)
- Many others…

I also recommend and will probably make use of the Physics Education Technology Project (PhET) website, http://phet.colorado.edu. This site provides numerous interactive simulations covering all of introductory physics. They can be run directly online or downloaded, and they are absolutely FREE. You are very much encouraged to check these out on your own.

## Signing up for FlipItPhysics:

1. Create a FlipItPhysics account
    a. Go to FlipItPhysics.com
    b. Locate and select "Get access to FlipItPhysics > Student"
    c. Register with institutional email address and complete site terms and conditions.
2. Click "Register"
    a. Set up your profile, and then choose the "Enrollments" tab.
    b. Enroll in this course by entering in the **Course Access Key**.

    **The FlipItPhysics Course Access Key for this course is: 7507f65c**

3. You will be given 30 days in which to access FlipItPhysics before having to purchase access or redeem an access code. This will provide you with a nice grace period should you drop the course.

## Prerequisites

Physics 2210 assumes that you have recently taken one semester of college-level calculus (Math 1210, or equivalent). We will be using some differential and integral calculus throughout the semester. In general, one semester of calculus is a prerequisite for Physics 2210. However, it is reasonable for highly motivated students to attempt taking these courses simultaneously. **What you need most is thorough knowledge of algebra and trigonometry.** It is not enough to have taken these courses in the past; you must have command of these topics in a way that makes them more-or-less second nature to you. A number of web-based resources for math help and review have been provided to assist you.

## Use of the internet: Canvas, and *FlipItPhysics*

This course makes extensive use of internet resources. We will be using two main websites: Canvas and FlipItPhysics:

- Canvas: maintained by the instructor and contains all course information, including the syllabus, file downloads, supplementary material, gradebook, and announcements. **Please consult this page regularly!** Updates and course announcements will be posted here. All scores will be posted on the Canvas gradebook.
- *FlipItPhysics* page: Your portal for viewing pre-lectures, taking the checkpoint quizzes, and doing homework. You will also be able to view your scores in *FlipItPhysics*, but only for these three assignment categories.

## Course Objectives

- At the end of this course, you (the student) will be able to apply basic physical principles to solve problems in a quantitative manner. The physical principles introduced in this course are those of Classical (Newtonian) Mechanics and include:
    - The basic mathematical *description* of motion (**kinematics**) for both linear and rotational motion. You will apply the equations of motion for constant acceleration in one and two dimensions to solve relevant canonical problems.
    - The basic mathematical description of the *causes of changes* of motion (**statics and dynamics**) for both linear and rotational motion. You will be able to draw a correct free-body diagram and use it along with Newton's Laws of motion to solve the relevant canonical problems.
    - Conservation of Energy and Momentum. You will be able to identify physical situations to which energy and/or momentum is conserved, and then use the "initial = final" mathematical relationship to solve relevant canonical problems.
    - You will be able to apply the above principles to universal gravitation, simple harmonic motion, and wave motion to solve relevant canonical problems.
- You will gain the ability to accurately translate a physical problem formulated in English sentences into a mathematical description, including the use of algebra, trigonometry, vector analysis, and calculus.
- You will gain the ability to interpret graphically presented information, including quantities defined by the axes, the slope (first derivative), and the curvature (second derivative).
- You will gain the ability to use collaborative verbal and written communication with a group of peers to solve problems in physics.

## Teaching & Learning Methods

- **Prelectures and Checkpoint Quizzes:** These are done at the *FlipItPhysics* website and are generally due on Mondays and Wednesdays at 7am. These are designed to ensure that you ***confront*** the relevant material for a given lecture period prior to that lecture. They are also your opportunity to provide feedback to the instructor as to what parts of the unit were difficult for you to understand.
- **Lecture Period (Mondays & Wednesdays):** The "lecture" period on Mondays and Wednesdays will be focused on addressing the questions and difficulties expressed by students in completing the Pre-lectures and Checkpoint quizzes. These lecture periods will be very interactive, wherein questions will be used to survey the class. Students will use colored cards to "vote" on an answer to each question. Usually, students will be asked to discuss the question with their neighbors followed by a revote. The goal is to allow students to reach a general consensus with their peers on the correct answer. If there seems to be widespread general difficulty with that day's material, the instructor may also provide a few slides to review. The lecture period will also be used to work some example problems.
- **Group Assignments:** These are done during the discussion section. Students will be organized into groups of 3 or 4. Each group will be given the same one or two problems to solve. Group assignments are an important opportunity in this course to get feedback on the way you answer physics problems on paper before you are asked to do it in the exams and quizzes. The idea of group assignments is also to develop your social and communication skills. As scientists and engineers, you will undoubtedly be asked to work in teams to solve problems. Groups will be organized by the instructor and will be changed periodically. While the working in groups, the instructor and TAs will circulate around the room, listen to the group conversation, and then facilitate the discussion and progress of each group by asking questions, reminding students of principles that are relevant, and helping to steer groups out of "blind alleys." The desired atmosphere is not one of an examination or even a quiz, but one of collaborative learning. Group assignments and solutions will be posted as the term progresses.
- **In-class quizzes:** These will be given most Wednesdays during the first 10-15 minutes of the class period and will typically consist of 1 story problem (i.e., you will need to translate/interpret the question into a mathematical expression) and 1 multiple-choice follow-up question. Quizzes are lower-stakes opportunities to practice and get feedback on your understanding of physics concepts and your problem-solving technique. Please bring a **calculator, writing implement, and your student ID to verify your identity** to each quiz. You are **not** allowed a formula sheet. A standard formula sheet will be provided with each quiz. The quizzes and solutions will be posted as the term progresses.
- **Homework:** The homework we assign is meant to solidify the physical concepts introduced in the previous week, synthesize it with past material, focus your attention on certain subtleties that might get lost in the prelecture and lecture presentations, and to give you practice at problem solving. It is extremely important to make a serious attempt to work the homework problems. It is only by doing so that you can really get to understand the concepts and how to properly present your solutions. **Past experience demonstrates very clearly that students who use google or some other homework problem compilation perform significantly weaker in the course than students who reject these study aids, even if this second group of students ends up with a lower homework score!** You will complete all individual homework assignments over the web using *FlipItPhysics*. In *FlipItPhysics*, homework assignments will consist of 3-5 multi-part problems that are required. You will encounter problems labeled as "interactive examples" and "standard exercises." The interactive example problems have the

option of a "help" button that you can use to guide you through the problem before submitting your answer. In all cases, you can submit answers as many times as you wish (up to 100 attempts). For most of the problem parts, you will be given immediate feedback, and so you may resubmit your answer if it was incorrect. For a few parts in each assignment, you will not get feedback until after the deadline has passed. You may change your answer as many times as you wish (up to 100 attempts), but you will be graded based on your last answer. Some assignments will include a few optional homework problems, which are variations on the required problems in the assignment or are different problems altogether. You should do as many of these as you can for additional review and practice for quizzes and exams. A more complete set of instructions and guidelines for doing homework can be found on the homework page found in the "pages" link of the Canvas website.

- **Help-lab:** This meets in the JFB Rotunda. TAs and the instructor will be available at the posted hours found in the "pages" link of the Canvas website. Help lab will offer help with understanding concepts, strategies for problem-solving, and guidance for completing homework.

## Evaluation Methods & Criteria

- **Pre-lectures and Checkpoint Quizzes:** You receive credit for **doing** these assignments, **irrespective of whether you answer correctly.** The purpose is for you to confront the material before the lecture period and to provide information for the instructor about what the class is having difficulty understanding. If you go out and google the answer without thinking about it, it defeats the purpose. Students receive 3 points for each completed pre-lecture and 2 points for each checkpoint quiz, *regardless of whether the answer is correct.*
- **Group Assignments:** Each group assignment is worth 5 points. Full credit will be given to each member of a group who makes a reasonable contribution toward solving the problem and follows the prescribed problem-solving strategy. There will be 20 group assignments during the semester, but your lowest three scores will be dropped.
- **In-class Quizzes:** Quizzes are worth 15 points each and are graded on a partial credit basis. They will be graded for demonstrating good problem-solving procedure and for quantitative accuracy. There will be 10 quizzes during the semester, but your lowest score will be dropped.
- **Homework:** Essentially, your homework will be graded by computer, and you will only be entering answers to questions without showing your work. Nonetheless, you will be required to present full solutions (showing all work) to many problems on the in-class quizzes and group problems. Hence, we strongly recommend that you adopt the problem-solving framework outlined on the "pages" link of the Canvas website. Each unit's homework set is worth 5 points in total. Homework is worth 100% of the total points if completed by the first deadline. There is a second deadline for all homework that is exactly one week after the first deadline. Homework completed by the second deadline can still earn 80% credit; that is, the maximum score is 4 out of 5. There is no other provision for accepting homework beyond the second deadline date, no exceptions.
- **Midterm and Final Exams:** For detailed rules please refer to the exam procedures found on the "pages" link of the Canvas website. There are 3 midterm exams (120 points each) and a comprehensive final exam (180 points). **You must take the final exam and score at least 25% (45 points) to pass this course.** Normal scientific and graphing calculators are allowed during exams. We do not allow laptop PCs, iPads (and the like), cell phones, or other devices with significant text (alphanumeric) storage capability, or those with wireless communication capabilities. If there is any doubt, the instructor's or TA's decision as to allowability is final, so

please do not push the boundaries of these rules. The Final Exam is essentially comprehensive, with some extra emphasis on the last units of material not covered on the third midterm exam.

- **Regrades on quizzes and exams:** Any dispute over the grading of a midterm exam or quiz must be brought to the attention of the instructor (not a TA). You must fill out a regrading form found on the files link of the Canvas website. You must deliver the form directly to the instructor within the two weeks after the exam or quiz was taken, either in person or by leaving it in his mailbox or the wall pocket outside the instructor's office door. Exams and quizzes will NOT be regraded after the two-week deadline. Submitted regrades will be evaluated and returned within two weeks of the regrade submission deadline for that exam or quiz.

## Determination of the Course Grade

Your grade for the course will be based on the total number of points you accumulate from pre-lectures, checkpoint quizzes, homework, in-class quizzes, group assignments, midterms, and the final exam. Point values for each category of assessment are shown in the table below:

| Assessment category | How many of each? | Points for each | Total points for category |
|---|---|---|---|
| Pre-lectures | 24 | 3 | 72 |
| Checkpoints | 24 | 2 | 48 |
| Homework | 24 | 5 | 120 |
| Group Assignments | 17 | 5 | 85 |
| Quizzes | 9 | 15 | 135 |
| Midterm Exams | 3 | 120 | 360 |
| Final Exam | 1 | 180 | 180 |
| **Total** | | | **1000** |
| Bonus Points | | | 25 |

**Quizzes:** There will be 10 quizzes throughout the course of the semester, but your lowest score will be dropped before computing your total score (see table above).

**Final Exam Improvement Rule:** If your final exam score (as a percent) is greater than your lowest midterm exam score, the final exam score **replaces** (as a percent) the lowest midterm exam score. That is, you will get your final exam score on both your final exam AND your worst midterm (scaled by 120/180).

**Bonus Points:** Near the end of the semester, you will have the opportunity to complete an online course survey to help the instructor improve the course for future semesters. If you complete this survey, you will receive an additional 7 bonus points. Finally, after each midterm exam, there will be a post-exam review session, during which you will complete some activities worth 6 bonus points each (15 points total). **Thus, there are a total of 25 bonus points as defined above: there are no other extra credit or make-up points available!**

**Grading System:** Your course grade is based on a straight (non-curved) 1000-point scale. The bonus points discussed above are meant to provide a buffer in case you have a bad week, or miss an assignment that cannot be made up. Other than your lowest quiz score and two lowest group

assignments, no other assignments will be dropped when determining your final score. Your final grade will be assigned using the table below according to the total number of points you earn (including bonus points). **THERE IS NO CURVE IN THIS COURSE!!!**

**Canvas is the official gradebook:** It is the student's responsibility to ensure the accuracy of all quiz and exam grades (which will reflect what is in our database): these are all accessible from Canvas. Please check your scores regularly, keep all your returned quizzes and exams (handed out during discussion sessions), and contact your discussion TA in case of an error. **Please note:** Friday, December 15th at 5 pm MST is the deadline for any and all notification to be made regarding recording errors, clerical errors, or arithmetic errors on any midterms or quizzes. **Unless you point out any scoring or recording error by this date, the scores as recorded will stand.**

Your final grade will be assigned according to the total number of points you earn and the table below:

| Course Grade | Point Range | Percentage based on 1000-point scale |
|---|---|---|
| A | 930 points and above | 93% |
| A- | 890 - 929.99 | 89% |
| B+ | 850 - 889.99 | 85% |
| B | 800 - 849.99 | 80% |
| B- | 750 - 799.99 | 75% |
| C+ | 700 - 749.99 | 70% |
| C | 650 - 699.99 | 65% |
| C- | 600 - 649.99 | 60% |
| D | 550 - 599.99 | 55% |
| E | below 550 | |

## Policy on scheduling accommodations (make-up exams, etc.)

**There will be no make-up midterm or final exams.** The only exceptions to this rule are **(a)** absence due to a university-sponsored activity or military duty, and **(b)** serious medical or family emergencies. In either case the student must provide complete documentation. All requests for exam accommodations are handled exclusively by the instructor; do not address such requests to TAs or anyone else, as they will not be honored. In the case of exception **(a)** the request for a make-up exam must be filed with the instructor at least **two weeks in advance** of the anticipated absence. **Please note that all exam dates and times have already been determined; mark your calendars now! Resolve any conflicts as soon as possible!**

**In general, there will be no make-up opportunities for any other work in the course** (in-class quizzes, group assignments, homework, pre-lectures, and checkpoint quizzes). There are many assignments in each of these categories and it is too difficult to arrange for make-up work. Consider that there is a 25-point buffer of bonus points available; no one assignment is worth very much.

The above rules are meant to encourage you to take responsibility for your own learning and to hold you (and you alone) accountable for your performance in this class. That said, unusual and unforeseen circumstances do occur, and the instructor is willing to discuss alternative accommodations when challenging situations arise. **However, when unusual circumstances to arise, it is the student's responsibility to alert the instructor *at the earliest possible moment* in order for any accommodation to be considered.**

## What is Expected of Students

Be sure to schedule enough study time. Typically, one should expect to spend no less than 2-3 hours on prelectures, homework and review for every hour spent in lecture. There are three vital activities in which you must engage to have a chance at succeeding in this course:

- **Take the online pre-lectures seriously and make an honest effort.** You will get some points for doing this and for doing the Checkpoint quizzes, but it is vital for you to use this opportunity to learn as much as you can about a particular topic **before lecture**, and to provide **feedback** to me as your instructor, so that we can make the best possible use of our lecture time together. The last on-line Checkpoint question is optional and is called "Lecture Thoughts." This is your opportunity to provide direct feedback to me that **I will see prior to lecture.** This will help me to tailor the lecture to **your needs**.
- **Participate in lecture.** This course will not have a traditional lecture where the instructor "holds forth" for 80 minutes! This is the essential idea of interactive learning. Studies show that students learn more from an active lecture in which they participate with the instructor and their peers in solving problems with inquiry-based techniques (e.g., surveying and voting).
- **Practice, practice, practice!** The only way to understand physics concepts well enough to use them is to practice on problems. Physics is similar to music and sports in this regard. You can't learn to play the piano by watching someone or by having someone tell you how. You have to practice. Do the assigned homework problems in *FlipItPhysics*, do the suggested additional problems before exams, and try practice exam problems provided by the instructor. Practice problems by mimicking the exam situation: start with a blank sheet of paper and work the problem through as far as possible without looking for help from the text, notes, or solutions until absolutely necessary.

**Honesty and Respect:** Cheating of any kind on an exam is a very serious violation of University rules and is unethical. Students caught cheating will receive a failing grade for the course and will be sent to the University Disciplinary Committee for further action. All teaching assistants, including the course marshall, and the administrative assistant for the course are to be considered proxies for the instructor when you are dealing with them with respect to this course. They are to be listened to and treated with respect at all times.

*Possession or access to solutions for any course element (e.g., textbook exercises, homework problems, exam questions, etc.) constitutes cheating and will be treated as such! More importantly, it inhibits your ability to learn.*

## Office Hours

You can meet with Prof. Dawson or Dr. Malissa by appointment. These may be granted very promptly (i.e. you might e-mail and be told to come on over), but immediate meetings cannot be guaranteed. We will both be present at the help lab at least two hours per week. **We are best reached by e-mail**, not by phone.

The TAs and the instructor will also be available during the help-lab hours. This is an important resource for students which is often under-utilized. If you have questions that you have not been able to get answered in the discussion sections or during the lectures be sure to attend the help lab.

## Student Code

All students and faculty need to be aware of provisions in the Student Code relevant to this course. Students have 20 business days to appeal grades and other "academic actions" (e.g., results of comprehensive exams). The date that grades are posted on the web is considered the date of notification. A "business day" is every day the University is open for business, excluding weekends and University-recognized holidays. If the student cannot get a response from the faculty member after ten days of reasonable efforts to contact him or her, the student may appeal to the department chair if done within 40 days of being notified of the academic action. Students should definitely document their efforts to contact a faculty member.
Similarly, faculty members who discover or receive a complaint of academic misconduct (e.g., cheating, plagiarism) have 20 business days to "make reasonable efforts" to contact the student and discuss the alleged misconduct. Within 10 more business days the faculty member must give the student written notice of the sanction, if any, and the student's right to appeal to the Academic Appeals Committee of the College of Science.

All students and faculty members are urged to consult the exact text of the Student Code if a relevant situation arises. The code is on the University web site at http://www.admin.utah.edu/ppmanual/8/8-10.html.

## Students with Disabilities

The University of Utah Department of Physics seeks to provide equal access to its programs, services and activities for people with disabilities. If you will need accommodations in this course, reasonable prior notice needs to be given to the Center for Disability Services, 162 Olpin Union Bldg, 581-5020 (V/TDD) to make arrangements for accommodations. CDS will work with your and the instructor to make arrangements for accommodations. All information in this course can be made available in alternative format with prior notification to the Center for Disability Services. You are encouraged (but not required) to come and talk to the instructor about your disability and necessary accommodations within the first two weeks of the semester.

## Drop/Add/Withdrawal

- Friday, October 20, 2017: Last day to add or drop classes with no penalty (full tuition refund)
- Friday, November 10, 2017: Last day to withdraw from classes (no tuition refund, grade of "W")

For more information, visit: Fall 2017 Academic Calendar.

## SUPPLEMENTAL INSTRUCTION

The Supplemental Instruction Program, called SI for short, is offered in this course to provide organized study sessions. These sessions are free and open to all students in the course and are led by an undergraduate who has done well in this subject area. Your SI leader will be attending classes, reading the material, and doing any relevant assignments to be prepared for the SI sessions. The purpose of SI is to see that each of you has the opportunity to do as well as you would like to in this course. **In SI sessions, we will review, organize, and clarify the material from lectures; teach you ways to develop effective study skills for this course; and help you prepare for exams**. Your SI leader will schedule 3 meetings per week convenient to the majority of your schedules. Attendance is voluntary, and you may attend as many or as few sessions as you like.

The days, times and locations of the sessions will be found on this chart.

All sessions will be held in LCB 225.

| Session 1 | Session 2 | Session 3 |
|---|---|---|
| Monday 10:45-11:35 | Wednesday 10:45-11:35 | Thursday 4:10-5:00 |

At the end of the semester, please complete the **post-survey** accessed at www.studentvoice.com/utah/si.html to provide us with feedback on your experience with SI. Your comments are valued and important to our ability to provide you with effective SI sessions that meet your needs. Let us know what worked well and what you would change!