Table of Contents

p. 2. Instructor, Course Coordinator, TAs, Lecture Sections, Discussions Sections, Supplemental Instruction, Help Lab

3. Textbook

4. Introduction, Diagnostic Exam, Prerequisites

5. Course Objectives, On-Line Access, SmartPhysics Access Key

6. Course Content, What is Expected of Students

7. Technology Etiquette, Memorization, Mathematics, Discussion Sections, Lectures

8. Homework, Significant Figures, WebAssign Formatting, Homework Deadlines, Homework Credit

9. Getting Started with WebAssign, Prelectures and Checkpoints, Optional Exercises, Forums, Midterms and Final Exams,

10. Midterm Schedule, Final Exam Schedule, Determination of Course Grade

11. Important Duties, Important Dates

12. Other Dates, Holidays, Use of Course Website, Office Hours, Between Lectures

13. Honesty, Students with Disabilities
Physics 2210 - Physics for Scientists and Engineers I
Fall Semester 2012

Dr. David C. Ailion

Instructor

David C. Ailion, 218 JFB, 581-6973, dailion@physics.utah.edu
Office Hours: 12:00 p.m. - 12:25 p.m., M W F or by appointment with Dr. Ailion

Course Coordinator

Mary Ann Woolf, 205 JFB, 581-4246 (fax: 581-4246), woolf@physics.utah.edu

Lecture Sections

Lecture 001: 12:55-1:45 p.m., 101 JFB
Lecture 010: 2:00-2:50 p.m., 101 JFB

Discussion Sections

Marshall: Rob Roundy (rroundy@physics.utah.edu)
TA: Yuan Fang (yuanfang2007@gmail.com)
TA: Justin Findlay (jfindlay@gmail.com)
TA: Bryant Svedin (bsvedin@gmail.com)
TA: William Talmadge (willtalmadge@gmail.com)
WebAssign TA: Doug Baird (doug.baird@utah.edu)
SI Instructor: Nathan Briggs (nathancbriggs@gmail.com)

<table>
<thead>
<tr>
<th>TA</th>
<th>SECTION</th>
<th>TIME</th>
<th>ROOM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yuan Fang</td>
<td>2210 - 003/012</td>
<td>7:30 a.m. - 8:20 a.m.</td>
<td>JFB 103</td>
</tr>
<tr>
<td>Justin Findlay</td>
<td>2210 - 004/011</td>
<td>7:30 a.m. - 8:20 a.m.</td>
<td>JFB 102</td>
</tr>
<tr>
<td>Justin Findlay</td>
<td>2210 - 005/014</td>
<td>9:40 a.m. - 10:30 a.m.</td>
<td>LCB 225</td>
</tr>
<tr>
<td>Bryant Svedin</td>
<td>2210 - 006/015</td>
<td>10:45 a.m. - 11:35 a.m.</td>
<td>JFB B-1</td>
</tr>
<tr>
<td>William Talmadge</td>
<td>2210 - 007/016</td>
<td>10:45 a.m. - 11:35 a.m.</td>
<td>JFB 102</td>
</tr>
<tr>
<td>Bryant Svedin</td>
<td>2210 - 008/017</td>
<td>12:55 p.m. - 1:45 p.m.</td>
<td>ST 208</td>
</tr>
<tr>
<td>William Talmadge</td>
<td>2210 - 009/018</td>
<td>2:00 p.m. - 2:50 p.m.</td>
<td>JFB 102</td>
</tr>
<tr>
<td>Yuan Fang</td>
<td>2210 - 028/029</td>
<td>9:40 a.m. - 10:30 a.m.</td>
<td>JTB 320</td>
</tr>
</tbody>
</table>

Supplemental Instruction

In addition to the help provided by the TAs, additional help is available through the Supplemental Instruction (SI) program. An upper division undergraduate student in the Physics Department will be available to answer your physics questions and explain the course material. Schedule: Mondays, 3:05-3:55 p.m. (WBB 517), Tuesdays, 2:00-2:50 p.m. (WBB 517), Fridays, 10:45-11:35 a.m. (WBB 517).

Help Center

Additional help is available Monday through Friday in the JFB Rotunda. The Help Lab schedule is available by clicking on the Help Lab on the course website. Here you can get one-on-one help from a TA.
COURSE INTRODUCTION

Textbook
No particular textbooks are required for the course, but two on-line programs are required: **SmartPhysics and a 1-semester access to Serway and Jewett's Enhanced WebAssign**. My lectures are based on Serway and Jewett's presentation, and the homeworks will be from the Enhanced WebAssign. The pre-lectures and check-point questions are all in SmartPhysics.

Since I will be covering everything that you need to know in the lectures and in the prelecture assignments and homeworks, an ultra-smart student who takes excellent notes might be able to get by without purchasing an additional textbook. However, I STRONGLY recommend that most students purchase either an electronic version of Serway and Jewett's "Physics for Scientists and Engineers" or a hard copy. The electronic version can be purchased as a package with the Enhanced WebAssign (either from the bookstore, from WebAssign directly, or from Cengage (the publishers)). A hard copy of either the 6th, 7th, or 8th editions of Serway and Jewett's book will be satisfactory. Furthermore, used and reduced price versions can often be found from such places as Amazon.com and eBay.

The on-line SmartPhysics program that you are required to purchase includes the pre-lecture material as well as some questions both in the pre-lectures and in the checkpoints, so it is a kind of bare-bones text of some of the material. A paper-back version of the text of the pre-lectures can be obtained at a special low price for people who like to read from a paper copy; however, essentially all the material in the paper copy is identical to that in the electronic on-line version that you will have anyway.

So, in summary, I strongly recommend that you purchase at least some version of Serway and Jewett's "Physics for Scientists and Engineers", in addition to the required on-line versions of their Enhanced WebAssign and SmartPhysics.

Costs
The costs are typically lower if purchased directly from the publishers than from the University’s Campus Store (Bookstore)

**Enhanced WebAssign (Serway and Jewett-8th Edition) published by Cengage,**

- a.) **Enhanced Web Assign (EWA) by Serway and Jewett.** This will cost you $47 if you purchase it directly from WebAssign ([http://www.webassign.net/features/textbooks/serpse8/details.html?l=search](http://www.webassign.net/features/textbooks/serpse8/details.html?l=search)) but will be only $43 if you purchase it directly from Cengage Brain (the publishers of Serway and Jewett). All homework problems will be performed and graded on Enhanced WebAssign. In addition, there are many additional interactive examples and additional optional exercises in EWA. The procedure for obtaining this special price from Cengage is now described.

  **Procedure to purchase EWA from Cengage.** Click on the following link: [http://www.cengagebrain.com/micro/utah2210](http://www.cengagebrain.com/micro/utah2210)

  Then click on the button “add to shopping cart” and check out to make your purchase. You will be mailed the printed access code with free shipping, which may take a few days. Regardless, you will have 15 days of free access to EWA, so you will be able to access homework from the first day; once you receive the access code you can just enter it in when you log in and will have access all semester. A slide show presentation of the step-by-step instructions can be found on a link on the Course Web page.

- b) A combination that includes an electronic version (e-book) of the text of Serway and Jewett as well as EWA can be purchased directly from WebAssign ([http://www.webassign.net/features/textbooks/serpse8/details.html?l=search](http://www.webassign.net/features/textbooks/serpse8/details.html?l=search)) for $75.

- c) Finally a combination that includes EWA, the e-book, and a paperback bound edition of the 8th edition of Serway and Jewett can be purchased from the Cengage Website ([http://www.cengagebrain.com/shop/isbn/9781111572051](http://www.cengagebrain.com/shop/isbn/9781111572051)) at a cost of $135.

**SmartPhysics published by W.H.Freeman**

The cost of the required prelecture assignments (if purchased from SmartPhysics website ([http://smartphysics.com](http://smartphysics.com))) is **$25.00**. (If purchased from the Campus Bookstore, there will probably be an additional markup.) This includes the prelectures, both in interactive form and in written form, the checkpoint exercises, and optional homework exercises.

If you also wish to have a paper-bound version of the prelectures and optional homework-like exercises, this can be
purchased for an additional $15 plus shipping ($8) from WHFreeman (\$23 total). The Campus Bookstore’s price may be a bit lower (either \$15 or \$20, approximately) since it will not include a shipping fee or tax. (The bookstore plans to order some of these and should have them in by the end of the week.) You can also buy the package that includes both the on-line version and the paperback text for \$53.35 now from the bookstore. However, for most students it is better to order the on-line version directly from WH Freeman for \$25 and separately purchase the paper-back (if you wish) for the additional fee. This paper-back version contains virtually the same information that is in the on-line version that you are required to purchase.

In summary, you are required to purchase EWA (cost \$43) plus the on-line SmartPhysics (\$25). In addition, I strongly recommend that you obtain a more comprehensive physics text, like Serway and Jewett whose order of presentation and choice of topics is similar to that in my lectures. The text is for your benefit; however, it is nice to have a text in order to read topics that perhaps you didn’t fully understand in lecture.

The relevant sections of Serway and of SmartPhysics for each lecture are indicated in the Lecture Schedule, which can be found on the Physics 2210 Course website, http://www.physics.utah.edu/index.php/courses.

PLEASE NOTE: Possession or use of any published supplemental guide to the textbook (other than The Student's Solution Manual) that presents solutions to the exercises in the course textbook is destructive to your ability to learn, unfair to your classmates, and constitutes cheating and will be treated as such (see the honesty section below)!

Introduction

This is an introductory course in Classical Mechanics. The Physics 2200 sequence is the highest-level course of the three main Physics introductory sequences. It introduces the basic concepts and theory of kinematics (motion), energy, momentum, rotational motion, gravitation and rotation and oscillatory motion. You are expected to learn to solve basic physics problems using calculus. Most students will find this to be a very demanding course that requires a significant amount of work and study time. For some, this will be the most challenging course they will encounter at the college level. Nevertheless, if you meet the challenge posed by the problems and do not get discouraged, you will find this to be one of the most rewarding and satisfying courses that you will take.

Diagnostic Exam

To help you decide whether or not you are sufficiently well-prepared to take Physics 2210 at the present time, we will be giving you a diagnostic exam. This exam is described in a link on the left-hand side of the Physics Department’s Course website. This 30 minute exam will be given during the discussion sessions on Tuesday, Aug. 21. For those of you who cannot make it then, the exam will also be offered on Tues, Wed, and Thursday (Aug. 21-23) at 4:30 PM in Room 103 JFB. Your performance on this exam will not count in your grade in Physics 2210 if you decide to stay in the course. However, we have found that there seems to be strong correlation, on the average, between students’ scores on this exam and their eventual performance and grade in Physics 2210. (The data supporting this correlation is shown in the reference to it on the Department’s Course website mentioned above.)

We offer a lower level course, Physics 1500, which is designed to help prepare for Physics 2210 those students whose background and preparation may not be adequate. Accordingly, if your score on this exam is 5 or below, you are strongly encouraged to take Physics 1500 now and Physics 2210 either in the Spring Semester or next year. If your score is 8 or above, you background and preparation should be adequate for you to take Physics 2210 now. However, the final decision on this matter is up to you.

Prerequisites

MATH 1210 Calculus I is a prerequisite for this course. We will be using differential and integral calculus regularly. It is recommended that two semesters of calculus be a prerequisite for Physics 2210. However, for highly motivated students it is possible to attempt taking these courses simultaneously.
Course Objectives

Many of you are in programs in engineering and scientific disciplines other than physics. You may question whether physics will ever be helpful to you. The answer to this question is "yes!" The course will help you to understand and solve problems that occur in a broad range of disciplines. The primary subject of this particular course is Mechanics, which is the primarily the study of objects in motion (kinematics) and the effects of forces (dynamics and statics). Mechanics includes motions in multiple dimensions, forces and the laws of motion, energy, momentum, rotational motion, gravitation, constraints, oscillations, and waves. Elements of this subject material are found throughout nature; accordingly, mastering physics will give you great insight into the world around you and much satisfaction from your heightened understanding. Even more important perhaps is that you will learn to think in a clear and rigorous fashion that will help you in other courses and in later life.

The three most important objectives of this course are to: (1) learn the fundamental principles of physics (force laws, conservation laws, etc); (2) learn how to describe real world phenomena quantitatively (kinematics, etc; (3) learn problem-solving skills that can be applied to other areas of science, engineering and life. The achievement of these goals will require a conceptual understanding of the physical principles, an ability to use equations to describe a particular phenomenon, and a methodical approach to problem solving. Being able to formulate and answer questions about nature will be far more worthwhile (and enjoyable) than memorizing huge numbers of equations.

This understanding is achieved by a combination of reading the texts, conscientiously doing the prelectures and checkpoint exercises before class, listening to lectures, working through examples, discussing questions with your TAs and other students, and doing problems. The assigned homework problems are absolutely necessary to develop this understanding. They are your practice "sessions." They will test your knowledge and will induce you to seek more understanding (through reading, working of examples. In addition to the assigned problems, we will offer a number of optional problems, exercises, interactive examples, etc, both in WebAssign and in SmartPhysics. These will not count in your grade, but will help you, particularly if you have trouble getting started on the problems. These will appear on WebAssign after each problem assignment and in SmartPhysics (in red on the SmartPhysics calendar).

A major course objective is that at the end of the course the student should be able to apply the concepts and methods of physics to new situations.

On-line Access

Most of the course materials can be accessed on-line. Your homework assignments will be accessed, turned in and graded electronically. They can be found on the Web through WebAssign (https://www.webassign.net/utah/login.html).

Students are responsible for their own SmartPhysics and WebAssign access and payment via credit/debit card or PayPal account on-line as well as.

For WebAssign you will have two options:

1. For $43one time from Cengage directly (http://www.cengagebrain.com/micro/uofutahphys), you receive access to all Enhanced WebAssign course material for one semester only. You can obtain a printable eBook for a small additional fee.

2. If you purchase from WebAssign directly, the prices are somewhat higher: $47 for the one semester WebAssign access. The primary advantage of WebAssign is that you can get immediate access (i.e., you do not have to wait the 5-7 days for the access card. However, the publisher has told Professor Ailion that ALL students currently enrolled in Physics 2210 will automatically have WebAssign access for 14 days starting Aug. 20.

For SmartPhysics, you will also have two options: purchase directly from SmartPhysics or purchase from the Campus Bookstore. However, in either case you must enter the SmartPhysics access key for our course, which is f00c5ba7. SmartPhysics also offers a video that will acquaint you with the features of SmartPhysics. It is found at the following web address: http://www.smartphysics.com/Content/About/student-support-videos.html

You should familiarize yourself with this course web-site, as well as SmartPhysics and WebAssign, and learn how to turn in your homework on-line and find your homework assignments. Solutions, old exams, important notices, and other information will also be posted on the 2210 course web page (http://www.physics.utah.edu/~woolf/2210_ailion.html). It is essential that you check the course web-site and the SmartPhysics and WebAssign
sites regularly, because essential course information will be posted and updated there from time to time.

Course Content

The course can be roughly divided into three parts. The first part discusses how to describe motion (a subject called kinematics) and will be followed by a study of what causes different kinds of motion (dynamics). This part will include Newton's Laws of Motion. The second part of the course will deal with those underlying quantities and concepts that seem to be unchanging even as motions, and hence change, is occurring. This leads to the conservation laws of energy, momentum, and angular momentum. It may seem paradoxical at first that understanding what does not change helps us to understand change better. In the final part of the course, we will take the powerful and general principles learned during the first two parts and apply them to gravitation, astronomy, oscillations, and possibly waves.

We will study most of Chapters 1-11, 13, and 15 of Serway and Chapters 1-16 and 19-22 of SmartPhysics. Any excluded sections will be announced ahead of time. Unless specifically announced, you are responsible for all material in these chapters, whether it is covered in lecture or not, as well as any supplemental material actually covered in the lectures. This is the standard curriculum for an introductory semester-long course in Mechanics. We will be covering roughly one chapter each week.

Please see the Lecture Schedule on the Physics 2210 Course Web page (http://www.physics.utah.edu/~woolf/2210_ailion.html) for details. Here, the topics to be covered in each lecture and the corresponding sections of SmartPhysics and Serway are listed. This Schedule may be upgraded from time to time and is intended only to be a guide for you. The actual due dates of the prelectures and checkpoints of SmartPhysics can be found on the SmartPhysics Calendar, and the due dates for the WebAssign Homeworks will be in WebAssign.

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 homework and review for every hour spent in lecture. In addition you are required to read the SmartPhysics prelectures and checkpoints prior to the due date (typically 9:00AM of the day of the first lecture on a particular topic). There are three additional activities that will help you to succeed in this course:

1. **DO YOUR READING OF SCHEDULED CHAPTERS OF SERWAY (OR SOME OTHER PHYSICS TEXT) BEFORE THE CORRESPONDING LECTURE!** (Again, the Course Schedule will help you here.) Most students cannot learn physics just from the lectures! Lectures will help you understand and synthesize material, fill in gaps, and make additional connections. But focused reading of a textbook is a prerequisite to effective use of the lecture. Make use of the many Quick Quiz questions that are spread throughout each chapter of Serway. There are answers to these in the back of the chapter, and they are very useful in helping to determine whether you are grasping the concepts being presented.

2. **Practice, practice, practice!** The only way to understand physics concepts well enough to use them is to practice on problems. Just as with music or sports, you must practice to be able to perform. A physics student who knows the textbook but cannot do problems will not succeed. Do the assigned homework problems, review problems (before exams), and other related problems in the textbook. If you have extra time, do additional problems, such as the ones that we offer as additional exercises at the end of each Chapter in WebAssign or the optional problem assignments (in red) in SmartPhysics. 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.

3. **Take notes during the lectures.** The process of putting down (in your own words) the ideas of the lecture will help you enormously in your understanding. This is essential, since the lectures will not be identical to the presentation in either Serway or SmartPhysics.

Many students complain that they don’t see the value of the lectures but would rather have the time spent just teaching them how to do problems like the homework problems. (This is done to some extent in the Discussion Sections – see below.) It is in the lectures and the reading of the text and prelectures that the concepts that underlie the homework problems are first introduced. If these concepts are not understood, a student will have trouble on the exams, even if he/she was able to get high scores on most of the homework problems.
Technology Etiquette

Some students check emails and facebook and send messages and “tweets” to friends during the lecture. This is excessively rude to the professor and will conflict with your learning of the material. If you wish to obtain a good grade, it is of paramount importance that you pay attention and TAKE NOTES during the lectures. You should not be checking e-mails or sending “tweets” during the class time. We discourage the use of electronic devices in class (e.g., I-phones, I-pads, etc.) but will allow them only for the taking of notes.

Memorization

There is often a great temptation in introductory courses to memorize the material. While this can be a useful strategy in some engineering, biology, and chemistry courses, memorization does not work well in physics, because there is very little that is meaningful to memorize. The important issues in physics are understanding the basic principles and how to apply them to real situations. In this course there are only a few principles; it is important not only to remember them but also to understand them.

Another common temptation is to memorize the meaning of symbols. This is particularly dangerous, because the same letter can be used in physics to represent very different quantities and concepts in different problems. The assignment of symbols is purely arbitrary, subject only to popular conventions. In solving physics problems, it is recommended that you be sure that you know what each given symbol actually means in its present context, rather than assuming some other definition. You should also explicitly define your variables, adhering, where appropriate, to the usual conventions (for example, we usually choose $F$ to mean the magnitude of an applied force).

Mathematics

The natural language of physics is mathematics. Physics assigns very precise and definite meanings to English words, such as "force" and "work." It is important that you can accurately state your ideas in physics both mathematically and linguistically, and be able to translate between the two. For example, for a one-dimensional (1-D) problem, one might say: "the electron starts from rest at the origin". This translates mathematically to: $x(t=0)=x(0)=0$ and $v(t=0)=v(0)=0$, assuming $x(t), v(t)=dx/dt$ to represent, respectively, the displacement and velocity of the object as functions of time, $t$.

Discussion Sections

To be in this course, you must register for a particular discussion section, and this automatically registers you for one of the two lecture sections: the 12:55 p.m. lecture (Section 001) or the 2:00 p.m. lecture (Section 010). Be sure to choose a discussion section that gets you into the lecture section of your choice. The lectures meet on Mondays, Wednesdays, and Fridays. You may attend either lecture, but must take exams according to the schedule for the lecture section for which you are registered (see below). We will attempt to accommodate any student who has a valid academic reason that does not allow him/her to take exams at the scheduled time but needs to take the exam with the other section on the same day. You must contact Prof. Ailion ahead of time to obtain the accommodation (by email).

PLEASE NOTE: Permission codes will not be given out for discussion sections for this course. If you want to get into a particular discussion section but find that it is closed, register for some other open section that gets you into the lecture that you want. Then go to the TA for the discussion section that you would like to attend, and ask the TA for permission to attend that section. It is the TA's discretion as to whether or not you are allowed into a particular section. We will do our best to accommodate as many students as we can, but there are room-space and workload considerations to be taken into account.

Discussion sections meet twice a week, on Tuesdays and Thursdays. There will also be a help lab with posted hours that is manned by the TAs. The purpose of the discussion sections is to help you learn how to do problems, like those in the assigned homework. The "help lab" is to help you with the current homework assignment, discuss results and solutions of exams, and give you a chance to ask questions about the course material.

Lectures

The class meets three times a week for lectures (M,W,F). On each of those days, the lecture will be given twice (during the two lecture sessions), one right after the other. Students are allowed to attend either or both of these sessions on any particular day, regardless of which they are officially registered for. The purpose of the lectures is to explain the underlying physics, an understanding of which is essential to doing the homeworks and doing well in the class. The lectures also include
some demonstrations that illustrate the points of the lectures. In the lectures we will often work out some examples (that may be similar to some of the homework problems) but whose primary purpose is to clarify a concept that has just been introduced. We will also discuss the physics underlying some of the SmartPhysics checkpoint problems during the lecture periods. You should try to understand the relationship between these examples and the underlying physical concepts. As stated earlier, you are discouraged from bringing to class wireless devices that are used primarily for entertainment (e.g., I-phones, I-pads, kindles, etc.). Use of such devices during the lectures is rude to the Professor and may be a distraction to other students and may result in their being confiscated.

**Homework (using Enhanced Web Assign)**

Most large classes in Physics use the web-based homework assignments and grading system provided by WebAssign. You will complete all homework assignments over the web and get immediate feedback (grading). For most problems, you will be given up to four opportunities to enter the correct answer. This means that you will only be entering answers to the homework. On multiple choice questions (where you choose some multiple of (a), (b), (c), etc., ) you will receive full credit if you get the correct answer on your first 2 tries; if you get the answer on your 3d try, you will receive only 75% of the credit that you would have received had you presented the answer on your first 2 tries; if you present the correct answer on your 4th try, you will receive only 50% of the corresponding credit. On non-multiple choice questions (where you must supply the answer), you will receive full credit if you get the correct answer on your first 2 tries; if you get the answer on your 3d or 4th tries, you will receive 90% of the credit that you would have received had you presented the answer on your first 2 tries. On many of the problems, WebAssign will attempt to provide you with targeted feedback in an attempt to determine what mistake you may have made if you provided an incorrect answer. An exception to this policy allowing multiple attempts will be HW 00, Part II. Only one attempt is allowed for each question, and each question will count only 0.5 points.

In contrast, on examinations, you will be required to present full solutions (showing all work) and will only have 1 try. Hence, it is strongly recommended that you work out all homework problems on a clean sheet of paper (even though you will not turn these in) and compare these to the solutions provided by the TAs, which will be available after the problem set due date through WebAssign. I highly recommend that you use the suggested General Problem-Solving Strategy on page 43 of Serway. It may seem that it will take more time, but experience shows that using a systematic method will save hours of hunting for a careless error.

**Significant Figures and WebAssign Formatting**

Please note that in order to be marked correct for the WebAssign problems that require numerical answers, you must pay close attention to the rules for handling significant figures, enter the correct number of significant figures (three is the typical value), and be within 2% of the answer (the actual numerical values used in each problem are randomized). You must also pay close attention to the units (provided in the question) in which the numerical answer must be given. (If your correct answer is in meters, but the question calls for the answer to be given in centimeters, it will be off by a factor of 100 and will be marked wrong!) WebAssign provides hints for formatting any answers that must be expressed using variables (symbolic formatting) and for cases where you have the right answer but an insufficient number of significant figures. (There is a tutorial on the use of significant figures.) Please be advised: You are likely to believe at various times that WebAssign has mistakenly marked your problem in error with "the big red X." Look again! Check your analysis, check units, and check significant figures! WebAssign is by no means perfect, but experience has shown that it (and not you) will be right in 99% of these cases.

**Homework Due Dates**

All homework should be done by Tuesday and Friday nights if possible. However, the precise due time is prior to 10:00 a.m. on the following Wednesday or 10:00 a.m. on the following Saturday morning, after which the homework cannot be accepted and no credit will be given. (So, if you are running out of time and cannot finish the entire assignment by the deadline, you should be sure to post on WebAssign the problems that you have completed so that you can get credit for them.) Occasionally, we may choose to extend the due date on a particular HW assignment, in which case we will notify you; however, in the absence of such notification, the HWs will be due at the above deadlines (W at 10a.m. and S at 10 a.m.). An exception will be HW00 Part II, which will be due at 7:30 AM on Thursday, Aug. 25.

**Homework Credit**

Each problem in the assignment is worth 2 points, whether the problem has 1 part or 7 parts. (You will notice, for example, that WebAssign will make a five-part problem worth 0.4 points per part.) Typically, there will be 6 problems assigned each day, so that the maximum score on the homework would then be 12 points. Occasionally we may assign 5 or 7 problems instead. At the end of the term, your five (5) lowest homework scores will be dropped. (So, it is in your interest that the homeworks missed are those with 5 problems rather than those with 7 problems.) No re-grades of the homework will
be allowed, and **NO LATE HOMEWORK WILL BE ACCEPTED**. Please don't even ask. Homework is due so often and for so many students that there is no time to handle it; solutions have to be posted right away. Consider that you have up to 5 chances to miss homework without penalty regardless of the reason). Due dates and times, point values for each problem, and maximum number of submissions are clearly indicated on WebAssign for each assignment. Barring some long-term server catastrophe at WebAssign, you are responsible for understanding and meeting these terms.

**Getting Started with WebAssign**

At the WebAssign Login Page, enter your UNID number (starting with "u" and followed by the rest of your ID number with the first digit removed) and password (the same login and password you use for the Campus Information System). Your first assignment is entitled "Intro to WebAssign." It will help you become familiar with WebAssign and the procedure for completing online homework assignments. However, it is not an exhaustive exercise which tests you on all you need to know about WebAssign.

Questions about WebAssign are best addressed to Mr. Doug Baird (email: doug.baird@utah.edu). Doug is the TA who has the most expertise with WebAssign and handling WebAssign is his primary responsibility.

**Prelectures and Checkpoints (using SmartPhysics)**

After registering for SmartPhysics (remember to use the access key code, f00c5ba7) you should look at the “Calendar” There you will see various entries, some in blue (prelectures), some in green (checkpoints), and some in red (optional homework exercises). These are all due by 9:00 AM on the date specified. The checkpoint exercises are due at the same day and time that the last prelecture on a particular subject is due. Performance of these in a timely manner will acquaint you with the topic of each lecture, thereby allowing you to obtain a more enjoyable and educational lecture experience. Also, you should be prepared to discuss the checkpoints in the corresponding lecture. If you read all the prelecture slides and answer the prelecture quizzes prior to the due time/date, you will receive full credit for that particular prelecture. Similarly, if you do the checkpoint problems prior to the due date/time, you will receive full credit for that particular checkpoint assignment. Full credit will be given for reading the slides and attempting the quiz and checkpoint problems, even if you do not provide the correct answer. The purpose here is not to penalize you, but rather to reward you for becoming acquainted with a lecture topic ahead of time.

**Optional Exercises**

In addition to regular homework assignments, which are required and count towards your grade, we offer a variety of optional exercises, conceptual problems, interactive problems, problems with hints, problems with answers, etc. You are encouraged to work through as many of these as you have time for, particularly if you have difficulty getting started on the assigned homework problems. These optional exercises are in WebAssign, and typically appear after a group of homework assignments. They are labeled Optional. These do not count towards your grade; they are only to help you. Many of the optional problems use or illustrate principles that are similar to those in the assigned homework, so you may find them to be very useful. In addition there are additional optional problems in SmartPhysics (shown in red in the “Calendar”)

**Forums**

Please note that WebAssign also provides online forums for homework that you may use to discuss problems with fellow students. These forums are similar to computer chat rooms and will also be regularly monitored by the TAs at times to be determined later. You are encouraged to participate actively in the forums, to seek help and to offer advice to your classmates on how to approach problems. However, the forums are not to be used for the purpose of posting explicit solutions to the assigned problems in any form. Such postings will be removed by either Professor Ailion or the TAs as soon as we see them. Continuing to post such solutions may lead to a student’s being excluded from participation in the forums.

**Midterms and Final Exams**

For detailed rules please refer to the Exam Procedures on the course web page. There are three (3) midterm exams and a final exam. **YOU MUST TAKE THE FINAL EXAM TO PASS THIS COURSE.** You must bring a picture ID (preferably your U of U Student ID card) with you to ALL exams. All exams are closed book. You may not bring any materials to any of the exams but a single 4”x 6” (or 3”x 5”) card, with helpful equations and relationships on it, and a calculator. Having a 4”x 6” (or 3”x 5”) card is a good idea for several reasons. First, preparing it will help you identify and focus on the most important relationships. Second, you will not have to memorize all the formulas. Third, it will allow you to quickly find the equations of interest during the exam. Do not believe that you can do well on the tests without
understanding the material, however. The tests will not be easy for most students.

Typically one question on each midterm will be very similar to one of the homework problems and at least one question will be quite different from any of the previously assigned problems, but will test your ability to apply the concepts to a “new” situation.

Normal scientific and graphing calculators are allowed during exams. Laptop PCs, palm pilots or other devices with significant text (alphanumeric) storage capability, or wireless communications devices and/or e-readers (i-Pods, i-Phones, i-Pads, Kindels, cell phones, PDAs, infrared ports, etc.) are NOT allowed. If there is any doubt as to whether an item is allowed, check with Prof. Ailion or with the TA – their decision is final.

The Final Exam is comprehensive. Last year’s midterm and final exams are posted on the course web page. Other old midterm exams from previous versions of this course may also be available. We do not guarantee that they will be completely relevant to the present exams, since the course content and emphasis has evolved and changed over the years.

Midterm Exam Schedule

Midterm 1: Friday, October 5, 2012
Section 001, 12:55 p.m., S Beh Aud
Section 010, 2:00 p.m., 1110 SFEBB (new business building)

Midterm 2: Friday, November 2, 2012
Section 001, 12:55 p.m., S Beh Aud
Section 010, 2:00 p.m., 1110 SFEBB (new business building)

Midterm 3: Wednesday, Nov. 21, 2012
Section 001, 12:55 p.m., S Beh Aud
Section 010, 2:00 p.m., 1110 SFEBB (new business building)

Midterm exams last 90 minutes and are thus longer than the normal lecture hour. Please arrive 10-15 minutes early on exam days so that we may get you seated, get the exams distributed, and allow you the full 90 minutes to complete the exam. On the day of the first midterm, plan to arrive extra early to get settled and to make sure you can find the location of the exam (see maps above). Because of space constraints, you must take the exam at the assigned time and location corresponding to the lecture section (001 or 010) for which you are registered! If there is a scheduling conflict that can be resolved by taking the exam at another time, this can be arranged, but you must notify Prof. Ailion by email well in advance. Accommodations can be made in cases of legitimate academic conflicts only.

There will be no make-up tests or exams. The only exceptions to this rule are (a) absence due to a University sponsored activity or to military duty, (b) serious medical emergencies, (c) travel plans that were finalized on commercial air transport prior to Aug. 20, 2012. In these cases, you will be required to provide appropriate documentation. All requests for exam accommodations are handled exclusively by Professor Ailion; so do not address such requests to anyone else, as they will not be honored. In the case of exception (a) or (c) the request for a make-up exam must be filed with Professor Ailion at least one week 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!

Final Exam Schedule

Friday, December 14, 2012, 3:30 - 5:30 pm: Section 001: Beh S Aud (Auditorium); Section 010: SW 134 (Auditorium)
All sections will take the final at the same time. This is a University departmental scheduled exam time. THERE WILL BE NO EARLY FINAL EXAMS!

Determination of Course Grade

Your grade for the course will be based primarily on your midterm and final exam scores. The weighting of the various contributors to your grade are as follows: homework 15%, the prelectures and checkpoints 10%, the midterms 50%, and the final exam 25%. The lowest five (5) homework scores will automatically be dropped.

Many students feel that satisfactory scores on the homeworks or prelecture and checkpoints will entitle them to a reasonable grade. This is NOT CORRECT! Since 75% of the grade is based on the exams, you MUST do well on the exams to receive a good grade in the course. However, conscientious performance on the homeworks and prelectures/checkpoints will help you
to do well on the exams.

Based on past performances with other instructors, I would expect that the median score will probably be in the C/C+/B-range. Roughly speaking, the third of the class that is just to the right of (higher than) the median, will probably be looking at some form of B. The third just to the left will likely be looking at some form of C. The extremes in the curve get A's and D/E's. However, these are only guidelines. I will use natural breaks in the scores to determine the actual lines between grades. Depending on these breaks, somewhere between 10 and 15% of the class will likely get some form of A.

Near mid-semester, I will try to provide you with a formula for you to estimate your grade based on homework and exams completed up to that point. Please note that this grade will only be an estimate, and that your final grade may change significantly, particularly since the final exam is worth 25% of your final grade. At the end of the semester, you will be provided with the point formula from which your final grade is calculated.

Please note that most homework assignments will be worth 12 points, but occasionally may be worth 10 or 14 points. The five (5) lowest homework scores will be dropped automatically. Your final homework grade will be based on the total number of homework points you accumulate divided by the total possible number of homework points (not counting the five homeworks that have been dropped.)

If you feel that the grader may have made an error in grading part of an exam, you may request a re-grading of the problem(s). However, any request for re-grading of a problem on an exam must be made before the following exam. You must fill out a re-grade form (found on this web site) and attach it to the entire problem (not just one part) to be re-graded. (Do NOT submit problems that you are not asking to be re-graded.) You must use a separate re-grading form for each problem. These sheets should be given to Professor Ailion in class before the next mid-term exam. In the case of Midterm #4 (the last midterm), you must submit a request for re-grading before the end of the last course lecture on December 10. Problems will NOT be re-graded after the next exam occurs. Exams MUST be done in black or blue pen (NOT red), in order to be eligible for a re-grade. No exam done in pencil will be re-graded. When you submit a request for the re-grading of a problem, the entire problem will be re-graded, not just the parts that you are disputing. It is usually the case that you will not lose points by submitting a re-grade, but this is not guaranteed. Submitted problems for re-grade will be evaluated and returned in your discussion section.

You are also allowed to ask for re-grades on the final exam. This request will be considered only if you are near a course grade boundary, in which case there are some additional special rules. The request must be made by 5:00 p.m. on December 19, 2012. You must turn in a re-grade form for each problem that you wish to have re-graded, just as with the midterms. However, you must turn in the entire final exam for a re-grade. The entire exam will be re-graded (not just the problems you submit for a re-grade), so it is possible that your score could be lowered if the grader finds other mistakes that were missed on the previous grading.

**Students Must Check Course Grades**

It is the student's responsibility to ensure the accuracy of all recorded homework, prelecture/checkpoints, and exam grades (which will reflect what is in our database). The homework and exam scores will be kept in your WebAssign account, and the checkpoint and prelecture scores will be in your Smart Physics Account. At the end of the Semester, we will combine the appropriately weighted WebAssign scores with the SmartPhysics scores to obtain a final score to determine your course grade. These are all accessible from the WebAssign website. Please check your scores regularly, keep all your returned tests (handed out during discussion sections), and contact your discussion TA in case of an error.

**Important Dates**

**Deadline for submitting re-grades:**

By next exam - Midterms 1-2
December 7, 2012 - Midterm 3

**Deadline for notification of recording errors, clerical errors, or arithmetic errors on any midterms or homework:** December 14, 2012 (Final Exam)

Unless you point out any scoring or recording error by this date, the scores as recorded will stand.
Other Dates

December 14, 2012: Final Exam
December 18, 2012: Graded Final Exams available from Mary Ann Woolf in JFB 205 (8:00 a.m. - 4:00 p.m.)
December 19, 2012: Deadline for all requests for re-grading of Final Exam
January 4, 2013: Graded Final Exams available from Mary Ann Woolf in JFB 205

University Dates

Last day to add without permission code is Sunday, August 26.
Last day to drop (delete) classes with no tuition penalty—Wednesday, August 29.
Last day to add classes is Tuesday, September 4.
Last day to elect CR/NC options is Tuesday, September 4.
Last day to withdraw from term length classes is Friday, October 19.

NOTE: It is now university policy that your courses will be irrevocably DROPPED if tuition is not paid on time!

Holidays
Monday, September 3 Labor Day
October 8-13 Fall Break
November 22-23 Thanksgiving Holiday

Use of Course Website

We make extensive use of the course website. Consult it regularly! There is a link from the course website (http://www.physics.utah.edu/~woolf/2210_ailion.html) to the WebAssign login page. Course information, announcements and changes will be posted there as soon as the information becomes available under News and Announcements. There is also information on how to contact TA's and the course instructor. Homework and exam scores will be available from the WebAssign site.

Office Hours

The instructor has posted office hours: 12:00 - 12:25 p.m. on Mondays, Wednesdays, and Fridays or by appointment with Dr. Ailion. Outside of these you can meet with Prof. Ailion by appointment. These may be granted very promptly (i.e., you might call or send an e-mail and be told to come on over), but Prof. Ailion can not guarantee specific times to meet with you outside of the posted hours. Please respect the fact that he is not to be interrupted between 12:25 p.m. and 12:55 p.m. on lecture days; he uses this time for last-minute prep before the two hours of lecture and to eat lunch in his office. He also reserves the right to adjust or cancel office hours on days when he is traveling out of town or has other engagements, which he will announce as they occur. He is best reached by e-mail, not by phone. He checks e-mail many times during most days and will respond promptly. Also you are encouraged to ask him physics questions via email.

The TAs will also be available during the help lab hours. This is an important resource for students, which is often underutilized. 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. TAs will also be assigned times to monitor the on-line forums on WebAssign for each homework assignment. Doing whatever is necessary to get your questions answered is your responsibility.

Between Lectures

On Mondays, Wednesdays and Fridays, Prof. Ailion gives two consecutive lectures from 12:55-1:45 p.m. and again from 2:00-2:50 p.m. This leaves only a short period of time to answer questions AND prepare for the next class. Therefore, only a few, short questions can be answered during the brief intermission. Often Prof. Ailion will have to leave promptly after the second lecture. On Mondays and Wednesdays, there is another class that begins at 3:00 PM in the same classroom, so we must be finished by then.

Honesty

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 on to the University Disciplinary Committee for further action. All teaching assistants, including the course Marshal and the administrative assistant for the course are to be considered proxies for Professor Ailion when you are dealing with them regarding this course. They are to be listened to and treated with respect at all times.

All students and faculty need to be aware of important changes in the Student Code that went into effect in the last couple of years. Students now have only 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 college Academic Appeals Committee.

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 and Astronomy 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 must be given to the instructor and to the Center for Disability Services, 162 Olpin Union Bldg, 581-5020 (V/TDD) to make arrangements for accommodations. You are strongly encouraged to come and talk to the instructor about your disability and necessary accommodations within the first two weeks of the semester.