Introduction

Physics 200 is the first semester of a one year calculus-based course that provides a broad introduction to physics. It is designed for students whose principle interest is not the study of physics but rather whose interest is in another science discipline such as biology, chemistry, or geology. It is particularly suitable for pre-med students who do not wish to be physics or chemistry majors.

The fall semester aims to provide a grounding in the subjects of mechanics and thermodynamics. Mechanics is the study of how and why objects move, from the everyday experiences of pushing a pen around on the table, through the excitement of a roller-coaster, to the stately motions of the planets. Thermodynamics extends these ideas to explain the movements of heat, the ideas of temperature, and, ultimately, the workings of engines from the smallest model airplane engine to the largest electrical power plant.

The course material assumes that you have a working knowledge of calculus, the mathematics of mechanics. If you are not comfortable with calculus you should enroll in Physics 100/105, which covers the similar material.

You must sign up for a section of Physics 100/200L, the common laboratory experience for the two courses.

Office Hours

I will generally be available for 30 minutes after class so please feel free to come ask questions during this time.

In addition I will have weekly hours on Monday and Wednesday afternoons 2 - 4 (or later if I don't have meetings).

Course Information and Supplies

<table>
<thead>
<tr>
<th>Lecturer</th>
<th>Course Text</th>
<th>Supplies</th>
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</thead>
<tbody>
<tr>
<td>Seth Major</td>
<td><em>Fundamentals of Physics</em> 10th Edition</td>
<td>Calculator</td>
</tr>
<tr>
<td>Office: G052</td>
<td>Haliday, Resnick, Walker</td>
<td>Lab notebook</td>
</tr>
<tr>
<td>Phone: 4919</td>
<td>email: smajor</td>
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You will need a scientific calculator and please bring it to every class and lab. We may not often use it in class but I will not warn you in advance when we do so you should get into the habit of bringing it to every class. You will use it in lab all the time. If you have a graphing calculator then that will be ideal. If not, then an inexpensive scientific model that can handle trig functions, logs, and exponentials will be sufficient.

You will need a bound book for your lab work. The labs involve printed handouts and worksheets as well your notes and the tables and graphs that you will print during the lab. These must be kept together in your lab notebook with your name on it that you will normally keep in the lab.
Policies

You are responsible for familiarizing yourself with the following policies. They outline your responsibilities in the course. I will go over this material on the first day of class but you should make sure that you have read this carefully.

Homework

Homework assignments will be posted on Blackboard and/or the web site at least one week before the assignment is due. They will not be handed out in class. The lowest homework grade will be dropped.

Pre-Labs and Labs

Laboratory handouts will be posted on Blackboard. After the first week, you will be responsible for printing out the handout, doing the pre-lab, and bringing the handout and pre-lab with you to the lab. Note that failure to complete the pre-lab exercise before the start of lab will result in a grade penalty for that lab. Your lab notebooks are due 24 hours after lab.

Examinations

There will be two mid-term exams held during the evenings of Wednesday October 2, 7-9 PM and Tuesday November 19, 7-9 PM, in G027. The final is on Thursday, December 19, 9-12 PM. I will provide you with a list of important formulas for your exams.

Grading

There will be weekly homework assignments in all weeks that do not also include an exam. There will be weekly laboratories that will be written up in your lab notebooks and graded. The lab grade also has a portion determined by examination. The complete course grade will be divided between all the activities according to the following formula:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Running Total</th>
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</thead>
<tbody>
<tr>
<td>Homeworks</td>
<td>15%</td>
</tr>
<tr>
<td>Labs</td>
<td>25%*</td>
</tr>
<tr>
<td>Midterms</td>
<td>2@15%</td>
</tr>
<tr>
<td>Class Participation</td>
<td>5%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>25%</td>
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*NOTE: The lab questions on exams will comprise 20% of the Lab portion of the grade and not toward the Exam portion.

We cannot grade what we can't read and we can't give grades to unidentifiable work. You are responsible for presenting your work clearly, for marking it clearly on the first page with your name and the assignment number, and for making sure that you work stays together.
Physics homeworks are graded on the **presentation of principles, the logical argument, and the calculations**, NOT on final answers. This doesn't mean that we don't want the correct answer, but it does mean that the answers by themselves are not worth anything, even if they are correct. You are being graded on the work that leads to those answers and all such work must be presented clearly and legibly, with all assumptions made clear, all non-trivial steps explained, and any non-standard notations clearly defined. Except in rare cases, a clear, well labeled, diagram is an essential part of all valid answers. Such diagrams should be large enough that all information can be presented without crowding.

**Attendance**

You are graded on participation and so being in class and taking an active role are essential for a high participation grade. If you know that you must miss a class then please let me know in advance (this is especially true of scheduled absences such as sports travel, group performances, or field trips for another course). If you do miss a class then it up to you to find out from your classmates what you have missed and to make up any missed work. In particular, if you are going to miss a class when homework is due then you **must** make arrangements with me or hand in the homework at another time. This **must** be done in advance and I will usually ask you to do the work early rather than after the fact.

Attendance at laboratories is mandatory. If you must miss a laboratory then a) you must inform us ahead of time except in the most exceptional cases (such as acute illness) and b) you must arrange ahead to time to make the lab up. In the exceptional case that you miss a lab without prior arrangement then you must contact me as soon as possible to discuss your reasons and to make arrangement to make up the work.

**Collaboration of All Kinds**

Most students find that it is extremely helpful to work together in various ways to study physics, especially to write solutions. This is normal and we encourage it. Similarly, the college provides a number of important resources to help you learn the material and apply it in the homeworks. These range from my office hours to the resources provided through the Q. Lit. center. You should get used to talking about physics among yourselves, with your friends from other classes, and with your professors, Q. Lit. tutors, and with students in other physics classes. All of these have something to teach you and you have something to teach them. Similarly, in lab you will be working in groups (usually of two) and will be expected to work very closely together, sharing ideas, checking answers, discussing the meaning of what you are doing.

All this collaboration is a good and vital part of the normal workings of physics. However, you have to exercise some good and ethical sense. In all circumstances acknowledge someone when they help you. In academic life it is not just good manners, it is a fundamental duty. When you get help, from whatever source, you must acknowledge that help. What does this mean to you? Well, if you do some problems as part of a group working session then indicate that fact on the homework and acknowledge your collaborators by name. If you work with a tutor on some problems, then note that on your work. If you get a particularly good idea from your lab partner mention that specifically in your write-up. (The worksheet must always list the lab partners name at the beginning anyway, this an extra courtesy.)

Collaboration is a good thing in physics. Copying, however, is as strictly forbidden here as in all academic work. A common effort that results in a set of answers with clear indication that you worked with others is great for homeworks and labs, though
obviously not for exams. However, work that you claim for your own but which is actually taken from another or done with another without proper acknowledgement is plagiarism. Plagiarism is a serious offence. It was responsible for the resignation of Hamilton's last president. Don't let it ruin your life too. Make sure you understand the Honor Code and its supporting materials.

Late and Missed Work

Assignments will be due at the beginning of class on Wednesday and I will accept assignments up to the start of the next class (Friday) with a 20% penalty. After that time the solutions will have been posted. Any assignments arriving after that time will be recorded as zero. If you can see that you are not going to make one of these deadlines then it is up to you to talk to me and work out some other arrangement before the deadline (this might, for example, result in some kind of extension). In cases such as illness or other serious emergency that prevent you meeting a deadline but don't give you advance warning, you should contact me as soon as possible to work something out.

As described above, after the first week you will be responsible for printing out the handout, doing the pre-lab, and bringing the handout and pre-lab with you to the lab. Failure to complete the pre-lab exercise before the start of lab will result in a grade penalty for that lab. Missing a lab is more serious. Normally, missing a lab without discussing it beforehand with an instructor will result in an automatic zero for that lab. Accordingly, as always, if you know there is going to be a problem with a lab then come talk to us about it and we can work something out. Usually it is possible in the same week so long as you talk to us ahead of time. In exceptional cases such as sudden illness you must contact us as soon a possible to explain the problem and make arrangements to make up the work. Your lab notebooks are due 24 hours after lab. Late notebooks will have a penalty of 10% per day until 50% is reached.

These policies have been adopted after a number of years experience to make expectations clear and to help avoid problems before they begin. They look quite strict and they are meant that way. However, things happen. They happen to all of us from time to time. That being the case exceptions can be made if you come talk to me as soon as possible. In almost all cases this means before the deadline. In exceptional cases where that is not feasible it means as soon as possible afterwards.

Accomodations

Hamilton College will make reasonable accommodations for students with properly documented disabilities. If you are eligible to receive accommodation and would like to make a formal request for Phys 100, please discuss it with me during the first two weeks of class. You will need to provide Allen Harrison, Associate Dean of Students (Elihu Root House; ext. 4021) with appropriate documentation of your disability.