

## PHYSICS 101 - CONCEPTUAL PHYSICS Tentative Syllabus

This is an introductory physics survey course aimed at providing an overview of how the world works.

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Course web page: [www.physics.sfsu.edu/~lockhart/courses/phys101.html](http://www.physics.sfsu.edu/~lockhart/courses/phys101.html)

Office hours to be announced in class + other times by appointment. You are encouraged to make use of my office hours. Small gaps in understanding can be easily corrected if taken care of promptly, but can lead to much greater difficulties later if ignored.

**Text:** Paul Hewitt, *Conceptual Physics* (Pearson/Addison-Wesley, 2010) is **required**. This is available in both hardbound and loose-leaf form and also comes in bundles that include WebAssign on-line homework access. You can probably also use Paul Hewitt, *Conceptual Physics*, **10th edition** (Pearson/Addison-Wesley), but would have to purchase a WebAssign code to go with it.

**Prerequisites:** Knowledge of basic algebra and basic geometry. You must also have a score of 50 or better on the Entry Level Mathematics Exam (ELM), or a grade of C- or better in Math 70, or an acceptable ELM exemption.

**Assignments:** There will be frequent required homework assignments, probably three per week. The homework is to be submitted via the web using **WebAssign** (see below). Homework is not a test. You are encouraged to work together on it and get help. However, you are responsible for understanding the physics of each homework problem and the method of solution. You must calculate your own answers. It is cheating to let other people do your homework for you. **You must start doing the WebAssign homework as soon as the first assignment is posted (probably by 8/27).**

**Exams and Grades:** There will be two midterm exams, a comprehensive final exam, and 4-5 short quizzes. Equation sheets will be provided for exams. You should bring a scientific calculator to exams. ***You may not use cell phone calculators, any type of computer, or any device with internet access.*** The tentative exam dates are listed on the course schedule, but the midterm dates may change (the final exam date and time is firm). If you have to miss a midterm exam, contact me as soon as possible (preferably before the exam). A grade of zero will be assigned unless you have a good excuse for missing the exam. If you do have an acceptable excuse (including a doctor's note in case of illness), your grade for the missed test will be the score you get on the final exam. Make sure to be available to take the final exam at the indicated date and time. Grades will be assigned according to the following approximate percentages: homework, 20%; midterms & quizzes, 40%; final, 40%

**The final exam MUST be taken at the scheduled time! Do not make travel plans that conflict with this schedule. Makeups given only for documented serious illness.**

**Laboratory:** The accompanying laboratory course, Physics 102, is optional. You might want to take it if you need a physics science lab course for GE requirements. Labs meet in TH 116. Be sure to attend the first lab meeting (Thursday/Friday this week) to hold your place in lab.

**Lecture Attendance:** Attendance at the lectures is not mandatory, but is advisable. Physics is best learned when you are exposed to the material in several ways – by reading the book, attending lecture, and doing the homework. Material and demonstrations that are not in the book may be presented in lecture, and homework problems may be discussed. **Please turn off cell phones during the lecture. Arrive on time for lectures.**

**Help Sessions:** Optional “help” sessions (for help with homework and questions) will be held weekly at several different times to be announced.

**Efficient Method of Study:** **Before** the lecture, read the relevant text sections and study the examples. Read the sections again after the lecture. At the very least, attempt all the assigned problems and if at all possible, work through some additional problems. Try to work the homework problems from fundamental relationships rather than by using special case formulae. **Ask questions** in the lecture, after the lecture, in help sessions, and in office hours. Finally, **keep up** with the material as it is covered. Each new section will build on the previous material, and you will lose much of the benefit of the lectures and assignments if you fall behind.

**Learning Objectives:** To develop an understanding of the nature of motion, forces, energy, momentum, fluids and fluid motion, solids and gases, temperature and heat, wave motion and wave phenomena, sound, electricity, magnetism, light, and atomic and nuclear physics, and to develop the ability to apply this knowledge to the solution of problems involving those phenomena.

**Cheating/Plagiarism:** All work you submit must be your own. You are encouraged to work together and get help on homework, but the final answers you submit must represent your own work. See the Physics and Astronomy Plagiarism policy on <http://www.physics.sfsu.edu> under Department Policies

**Withdrawals:** You can drop yourself from the course any time up through the “drop deadline” (Sept. 7). After that, you must withdraw by petition, for “serious and compelling reasons.” (Poor performance in the course is not an acceptable reason.) If you withdraw from the lecture, you normally must also withdraw from the lab. A new SFSU policy only allows you once chance to repeat a course. Thus, if you withdraw from this course, you will basically not be able to withdraw a second time. The deadline for withdrawing without a documented serious medical reason is Nov. 16. See the Dept. withdrawal policy on <http://www.physics.sfsu.edu> under Department Policies.

**Disability Accommodation:** Students with disabilities who need reasonable accommodations are encouraged to contact the instructor. The Disability Programs and Resource Center is available to facilitate the reasonable accommodations process. The DPRC, located in SSB 110, can be reached by telephone at 338-2472 (voice/TTY) or by e-mail at [dprc@sfsu.edu](mailto:dprc@sfsu.edu).

## WebAssign Details

### Registration:

You must purchase an access code for the WebAssign on-line homework service. A code comes bundled with some textbook packages, and you can also purchase a code at the bookstore, or on-line with a credit card. WebAssign can be accessed at <http://webassign.net>. **You can log in to WebAssign and use the homework system without paying for an access code for the first ten days of the semester.** You should be able to log on beginning Friday, Aug. 27. **You will be dropped from Phys 101 if you have not paid the WebAssign registration fee by 11 p.m. on Monday, Sept. 6.**

**Logging On to the System.** To do the homework, connect with a computer browser to <http://webassign.net> You log on with a username and password which we construct for you. Figure out yours using the following example:

If your name and SFSU ID are: Minerva **Smith-Gomez**, 54321**0987**, then your log-in is:

Username: **smithgomez0987**

Institution: **sfsu**

Initial password: **0987** or **987**

*Username:*

This is formed from the last name you have on file at the registrar, plus the last four digits of your SFSU ID (*not* your social security number). If you have a space or a dash in your last name, it is omitted.

*Password:*

Your password is formed from the same four digits used in your username - the last four digits of your SFSU ID. But - leading zeros may be dropped. You may have to try it both ways. *You should change your password immediately during your first log-in*, to something more secure and unique. This can be done under "My Options" on the upper right.

**Important note for previous WebAssign users:** If you have had a WebAssign account at SFSU in the past, you will already have a username and password in the WebAssign system. You should continue to use the user name and password. If you have forgotten your password, let me know and I will reset it for you.

**Try your log-in ASAP.** Accounts will be set up for people on the class lists or wait lists by Friday Sept. 27. Try it out right away. If you are sure it is not working, email your instructor for help. Include your name, SFSU ID, *and the log-in username and password you are trying to use.*

**Email address.** While you are in "My Options," note the email address in the system. This will probably be your SFSU email. Feel free to change the email address to another one you prefer. Having your email in the system is important because (1) if you ever forget your password, WebAssign can email it back to you automatically, and (2) we will have your preferred email on file. Independent of the WebAssign system, it is good if you receive email from your SFSU email account. We are likely to send you email via the SFSU registration system, since most other methods don't work for hundreds of people at a time! The best way is for you to set up forwarding with your SFSU account, to send the mail on to your yahoo, gmail, hotmail, *etc.* account. Instructions for forwarding email are given at <http://www.sfsu.edu/~helpdesk/email/emailcentral.html#forwarding>.

**General System Usage.** You can log in and out of the system as many times as you like, and can save your work from one session to another. You can make several tries on each part of each question. You should avoid the "Submit entire assignment" button at the very bottom of the assignment, since each such submission uses up one of your tries on each part of each problem. Just submit your answers individually, one by one. Note that the numerical values in many problems are "randomized" for each student.

**“Introduction to WebAssign” Assignment.** Please work through the initial assignment showing how to enter numbers into the system. Exponents and equations are a bit tricky. In general, WebAssign looks for one percent accuracy (three significant figures). So, work out the problem with four significant figures and then round off the answer to three significant figures. Enter scientific notation using an "e". For example,  $4.61 \times 10^{-3}$  would be entered as 4.61e-3. This assignment will not be graded.

**Using the WebAssign “Ask Your Teacher” Function.**

I will try allowing use of the “Ask Your Teacher” feature of WebAssign as long as it is not over-used. Please use this only if you have worked hard on a problem and are completely stuck. (I.e., don't ask things like “How do I do problem 2?”)

If you have made a good effort toward working the homework problems and have a legitimate question, you can use the “Ask Your Teacher” function. This is better than sending me an e-mail because I will be able to see what answers you have tried. To use this feature, navigate to the top or bottom of the assignment you are working on and click on “Ask Your Teacher.” Say what problem you are having trouble with, and exactly what you have tried, then click “Save”. To view my response, open up the assignment and click again on “Ask Your Teacher.”

**PHYSICS 101 TENTATIVE LECTURE SCHEDULE - FALL 2010 J.M. LOCKHART**

<u>Week</u>	<u>Lect.#</u>	<u>Date</u>	<u>Topics</u>	<u>Reading</u>
1	W 1	8/25	Introduction; Units & Dimensions; Sci. Notation	
	F 2	8/27	Newton's First Law; Forces	Chap. 2
2	M 3	8/30	Distance, Displacement; Avg. Speed, Velocity; Acceleration	3
	W 4	9/1	Gravity & Free Fall;	3 & 9
	F 5	9/3	Mass and Weight; Newton's Second Law	4
3	M	9/6	<b>Labor Day - No Class</b>	
	W 6	9/8	Newton's Third Law; Vectors	5
	F 7	9/10	Momentum; Conservation of Momentum	6
4	M 8	9/13	Work and Energy	7
	W 9	9/15	Energy & Power	7
	F 10	9/17	Rotational Motion I	8
5	M 11	2/20	Rotational Motion 2	8
	W 12	9/22	Projectile Motion	10
	F 13	9/24	Atomic Structure	11
6	M 14	9/27	Solids & Liquids	12-13
	W 15	9/29	Gases	14
	F 16	10/1	Temperature; Review for Midterm I	15
7	M	10/4	<b>MIDTERM I</b> (Chaps. 2-14)	
	W 17	10/6	Heat & Heat Transfer	15-16
	F 18	10/8	Phase Change; Thermodynamics	17-18
8	M 19	10/11	Vibrations and Waves	19
	W 20	10/13	Sound I	20
	F 21	10/15	Sound II	21
9	M 22	10/18	Electrostatics	22
	W 23	10/20	Electric Field and Potential	22
	F 24	10/22	Current and Resistance	23
10	M 25	10/25	Ohm's Law; Electric Power	23
	W 26	10/27	Magnetism I	24
	F 27	10/29	Magnetism II	24
11	M 28	11/1	Electromagnetic Induction	25
	W 29	11/3	Light I	26
	F 30	11/5	Light II	26-7
12	M 31	11/8	Mirrors & Reflection	28
	W 32	11/10	Refraction & Lenses	28
	F 33	11/12	Lenses; Review for Midterm II	28
13	M	11/15	<b>MIDTERM II</b> (Chap. 15-28)	
	W 34	11/17	Light Wave Properties	29
	F 35	11/19	Interference; Polarization	29
			<b>Thanksgiving Break</b>	
14	M 36	11/29	Light Emission	30
	W 37	12/1	Light Quanta	31
	F 38	12/3	Atomic Structure II	32
15	M 39	12/6	X-Rays and Radioactivity	33
	W 40	12/8	Nuclear Reactions	34
	F 41	12/10	Nuclear Energy	34
16	M 42	12/13	Relativity; Final Exam Review	35
	M	12/20	<b>FINAL EXAM (10:45 a.m. - 1:15 p.m.)</b>	