



**HOUSTON COMMUNITY COLLEGE**

**SOUTHWEST COLLEGE**

**UNIVERSITY PHYSICS I –PHYS 2325  
COURSE SYLLABUS FALL 2007**

**Course Title: University Physics I**

**Course No.: PHYS 2325**

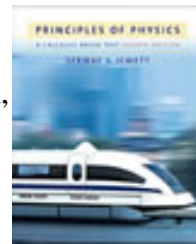
**Class No.: 14114**

**Time and Location: 7:30 AM - 9:30 AM Tuesdays and Thursdays  
Stafford Center -- Room STF2 W124**

**Instructor: Kumela Tafa, Ph.D.  
Office Hours: By appointments only  
E-mail: [kumela.tafa@hccs.edu](mailto:kumela.tafa@hccs.edu)**

**Text Book:**

Serway, Raymond A. & Jewet. (2006) *Principles of Physics*, Thomson, Brooks/Cole 4<sup>th</sup> edition, USA.  
ISBN-10: 053449143X



**Course Intent and Description:**

**PHYS 2325 UNIVERSITY PHYSICS I**

*Prerequisites.* Must be placed into GUST 0341 (or higher) in reading and be placed into MATH 2413 (or higher).

Credit: 3 (3 lecture)

A calculus-based physics course designed specifically for chemistry, physics, and engineering majors. Topics include principles of mechanics, sound, wave phenomena, kinetic theory, fluid flow, and thermal physics.

Core Curriculum Course. (formerly PHYS 2425)

## **Instructor guidelines and policies**

**Attendance:** HCCS Attendance Policy is stated in the *Fall 2007* Students Handbook *page 2* as follows: “You are expected to attend all lecture classes and labs regularly. You are also responsible for materials covered during your absences. Instructors may be willing to consult with you for make-up assignments, but it is your responsibility to contact the instructor. Class attendance is checked daily. Although it is your responsibility to drop a course for nonattendance, the instructor has the authority to drop you for excessive absences. You may be dropped from a course after accumulating absences in excess of 12.5 percent of the total hours of instruction (lecture and lab). For example:

- For a three credit-hour lecture class meeting three hours per week (48 hours of instruction), you can be dropped after six hours of absence.
- For a four credit-hour lecture/lab course meeting six hours per week (96 hours of instruction), you can be dropped after 12 hours of absence.”

If circumstances significantly prevent you from attending classes, please inform the instructor.

[http://www.hccs.edu/students/handbook/academic\\_info.pdf](http://www.hccs.edu/students/handbook/academic_info.pdf)

**Assignments:** Practice problems are assigned from the text after every chapter is covered. Students are strongly advised to attempt all these selected problems and other problems from the text. In general, student who fail to do these assigned problems do not do well in the course.

**Make-up Exams:** *There are no make-up exams*, therefore, make every effort to take exams on their scheduled date. If an exam is missed, the best of the upcoming exams counts as two exams. Should you miss more than one exam, you will be administratively dropped from the course.

**Cell phones and beepers:** All cell phones and pagers should be set on “silent” or “vibrate” during class times.

**Recording :** Absolutely no recording of any sort unless otherwise recommended by ADA office.

**Grade Determination:** Three regular exams and a compulsory comprehensive final will be administered during the semester. Quizzes and/or home works will also be administered as time permits. ***Note: The final examination is compulsory (no student is exempted) and once a student takes the final Examination, that student cannot receive a grade of “W” in the course.***

The final grade is based on the score out of 100% that the student accumulated from the three exams, quizzes/home works and the final exam. Below is the weighting of the categories:

### Grading Scale

Exam I	20 %
Exam II	20 %
Exam III	20 %
Quizzes and Home Works	15 %
Final Exam	25 %
Total	100 %

A = 90-100 %

B = 80-89

C = 70- 79 %

D = 60-69 %

F = &lt; 60 %

**NOTICE:** *Students who repeat a course three or more times may soon face significant tuition/fee increases at HCC and other Texas public colleges and universities. If you are considering course withdrawal because you are not earning passing grades, confer with your instructor/counselor as early as possible about your study habits, reading and writing homework, test-taking skills, attendance, course participation, and opportunities for tutoring or other assistance that might be available.*

### Important Dates

Classes begin/system	August 25, 2007
Last date to Drop/Add/Swap	August 31, 2007
Official day of record	September 7, 2007
Last date for administrative and student withdrawals	November 8, 2007
Thanks Giving Holiday	November 22 - 26, 2007
Instruction Ends	December 7, 2007
Final Examination	December 8 – 14 , 2007
Semester Ends	December 14, 2007
Grades Available to Students	December 21, 2007

### **Withdrawal Policy**

Withdrawal from the course after the official day of record and prior to “W” Day, (It is November 8, 2007 for the current semester) will result in a final grade of “W” on your transcript. No credit will be awarded for a course earning a “W”. If you stop attending class, you must withdraw at the registration office prior to “W” day. If you stop attending class and do not officially withdraw, you will receive an “F” for the course.

**Disability Support Services (DSS):**

*"Any student with a documented disability (e.g. physical, learning, psychiatric, vision, hearing, etc.) who needs to arrange reasonable accommodations must contact the Disability Services Office at the respective college at the beginning of each semester. Faculties authorized to provide only the accommodations requested by the Disability Support Services Office."*

For questions, contact SW College ADA Counselor at 713-718-7910 or ADA System coordinator at (713) 718-5165.

***Honor Code:***

You are expected to adhere to the honor system.

**Academic Dishonesty:** Any form of cheating on a test or exam, plagiarism on assignments, etc. will not be tolerated. Any suspected incidents of plagiarism and/or cheating (academic dishonesty) will be dealt with severely in accord with the College's guidelines.

***Tentative outline for University Physics I-PHYS2325 (Fall 2007)***

***N.B. This outline is subject to change as the semester progresses***

Week/date	Topics covered	Chapter/s
<b>I, II</b>	Introduction and Vectors,	<b>1</b>
	Motion in one dimension,	2
<b>II-IV</b>	Two dimensional Motion, The Laws of motion,	3,4
	Exam I	1- 4
<b>IV- VI</b>	Applications of Newton's Laws,	5
	Energy and Energy Transfer	6
<b>VI-VIII</b>	Potential Energy, Momentum and Collisions	7,8
	Exam II	5-8
<b>IX-XI</b>	Rotational Motion, Gravity, Planetary Motion and the Hydrogen Atom	10, 11
<b>XIII,XIV</b>	Oscillatory Motion, Mechanical Waves , Superposition and Standing Waves	12, 13, 14
	Exam III	10-14
<b>XIV, XV</b>	Fluid Mechanics, Relativity	15, 9
<b>December 11, 2006</b>	Final Exam	All Chapters Covered

## ***Tentative Schedule for University Physics I-PHYS2325 (Fall 2007)***

***N.B. This outline is subject to change as the semester progresses***

Monday	Tuesday	Wednesday	Thursday	Friday
		August		
27	28 Lec I	29	30, Lec II	1
		September		
3	4, Lec III	5	6, Lec IV	7
10	11, Lec V	12	13, Lec VI	14
17	18, Lec VII	19	20 Lec VIII	21
24	25 Lec IX	26	27 Exam I	28
		October		
1	2, Lec X	3	4, Lec XI	5
8	9, Lec XII	10	11, Lec XIII	12
15	16, Lec XIV	17	18, Lec XV	19
22	23, Lec XVI	24	25 Exam II	26
29	30, Lec XVII	31		
		November		
			1, Lec XVIII	2
5	6, Lec XIX	7	8, Lec XX	9
12	13, Lec XXI	14	15, Lec XXII	16
19	20, Lec XXIII	21	22, Lec XXIV	23
26	27, Lec XXV	28	29 Exam III	30
		December		
3	4, Lec XXVI	5	6 Review	7
10	11 Final Exam	12	13	14

## **PROBLEM SOLVING IN PHYSICS**

Physics is a lot like driving or swimming - you have to learn by doing it. You could read a book on driving and memorize every word in it, but when you are behind the wheel the first time you are going to have hard time to coordinate what you memorize in practice. After some training you will find that driving is the most easiest thing to do. Similarly, you can read your text book and/or your note book carefully, memorize every equation and formula in it but when you finish you still have not learnt physics. To learn physics you have to go beyond passive reading; you have to interact with physics and experience it by doing (solving) problems.

Below is presented a brief summary of problem solving steps in physics. The suggestions should help to develop a systematic approach in problem solving. It should be underlined that at the outset that there is no recipe for solving problems in physics --- it is a creative activity. In fact the opportunity to be creative is one of the attractions in physics. The following suggestions, then are not intended as a rigid set of steps that must be followed like steps in computer programming. Rather, they provide a general guideline that experienced problem solvers find to be effective.

- ◆ **Read the problem carefully** Before you can solve a problem you need to know exactly what information it gives and what it asks you to determine. This is essential first step in problem solving.
- ◆ **Sketch the system** You may say that this is not that important. It is important and worth doing it. A sketch helps you to acquire a physical feeling for the system. It also provides an opportunity to label those quantities that are known and those that are not determined.
- ◆ **Visualize the physical process.**
- ◆ **Plan** This may be the most difficult, but at the same time the most creative, part of the problem -solving process. From your sketch and visualization, try to identify the physical process at work in the system. Then develop a strategy -a game plan - for solving the problem.
- ◆ **Identify appropriate equations** Once a plan/strategy has been developed, find the appropriate equations to carry it out.
- ◆ **Solve the equations** Use basic algebra to solve the equations identified in the previous step. Work with symbols like  $x$  and  $y$  for the most part, substituting numerical values near the end of the calculations.
- ◆ **Check your answers** Once you have an answer, check to see if it make sense: (i) Does it have the right dimension? If you determine force the dimension should not be in seconds! (ii) Is the numerical value reasonable?  $10/100$  should not give a  $1000!!!$
- ◆ **Explore limits/special cases**

Finally, it is tempting to look for shortcuts when doing a problem -- to look for a formula that seems to fit and some numbers to plug into it. It may seem harder to think ahead, to be systematic as you solve the problem, and then to think back over what you have done at the end of the problem. The extra effort is worth it, however, because by doing these things you will develop powerful problem - solving skills that can be applied to unexpected problems you may encounter on exams --- in life in general!!

### Assignments:

Homework and practice problems are assigned from the text after every chapter is covered. Students are strongly advised to attempt all these selected problems and other problems from the text. In general, student who fail to do these assigned problems do not do well in the course.

### Assigned Problems for Phys 2325

**Assigned Practice problems are attached at the end of your lecture notes !**