Syllabus

Physics 1000, "Motion and Matter", Section I Fall 2014

Class Schedule: Tuesday, Thursday 15:30-17:10
Location: Barton Hall BA130.
Instructor: Dr. Zameer Hasan (215) 638 7219
Phone: Office: 1-2733 Lab: 1-2039, 1-7228, and 1-2667
E-mail: Zhasan@Temple.edu (use only in very compelling circumstances at your own risk)
Office and Hours: Barton Hall, BA 316, Tuesday 12.30-13:30 and Tuesday 17:10-18:30.

TEXT: Conceptual Physics, 11th Edition, Ring Binder Version Paul G. Hewitt, Pearson Addison Wesley, available from SAC Bookstore
ISBN: -13:978-0-558-98586-8, and 0-558-98586-6
Support Text: NONE
Prerequisites: NONE

I. GOALS:

The course, as taught, will be divided into three major sections: the first, dealing with the motion of physical objects, the second section dealing with the matter and the third, with thermal properties and modern gadgets and devices. The first part is almost as big as the second and third combined. The course will be taught by lectures and there would be no portion dedicated to laboratory experiments. The goal is to make the student develop a conceptual understanding of:

1. The laws governing the motion of physical bodies, starting from the motion of objects on earth to spacecrafts, satellites, stars and galaxies.
2. Difference between Aristotle's, Galileo's and Newton's description of motion.
3. A quantitative understanding of motion by using physical quantities and concepts such as speed, velocity, acceleration, force, momentum and energy.
4. Newton's laws of motion and their universality of application in everyday life to cosmology.
5. Newton's Law of Universal Gravitation and how it applies on earth as well as in describing the universe and its formation as we know it today.
6. Appreciation of the properties of matter, how they are derived on the basis of atomic scale properties of the constituent matter.
7. The formation of matter: atoms, molecules, mixtures and compounds.
8. Formation and basic properties of different phases of matter: gases, liquids and solids.
9. The impact and usage of materials properties in everyday life.
10. Heat and its transport, green houses and green technology.
11. Common daily use gadgets and devices; myths and realities about them.

II. DISABILITY DECLARATION

Any student who has a need for accommodation based on the impact of a disability should contact me privately to discuss the specific situation as soon as possible.

III. COURSE CONTENTS AND TIME TABLE

This course will be taught with the help of lectures only, and no laboratory experiments will be required. However, classroom demonstrations, and video tapes may be used, if needed, to give a feeling of the concepts and the theory covered in lectures. Attendance in the class is, therefore, necessary. The course covers all topics on Mechanics, Properties of Matter, and other topics as indicated below. A detailed timetable is given below. **However, there may be some adjustments necessary depending on the degree of reception by the students or some other compelling circumstances.**

There will be some extra credit problems or writing assignments accommodating students that are good in dealing with the math or good at writing and searching daily science news while making use of the internet and information technology.

Lecture Dates	Topics	Chapter No.

Note that chapter numbers may vary in different editions of the text.

Tuesday, August 26	**About the course**	
Thursday, August 28	**Science, Physics and Motion 1**	
Tuesday, September 2	**Linear Motion Equilibrium and**	**2, 3**
Thursday, September 4	**Linear Motion: Newton's Laws**	**2, 3**
Tuesday, September 9	**Linear Motion: Newton's Laws**	**3-5**
Thursday, September 11	**Newton's Laws cont.**	**3-5**
Tuesday, September 16	**Momentum**	**6**
***Thursday, September 18**	**FIRST TEST covers Chapters 1-5**	
Tuesday, September 23	**Momentum and Energy**	**6/7**
Thursday, September 25	**Energy**	**7**
Tuesday, September 30	**Energy/Rotational Motion**	**7**

Thursday, October 2	**Rotational Motion/ Gravitation**	**8**
Tuesday, October 7	**Gravitation**	**9**
***Thursday, October 9**	**SECOND TEST covers Chapters 6-9**	
Tuesday, October 14	**Projectile and Satellite Motion**	**10**
Thursday, October 16	**Projectile and Satellite Motion**	**10**
Tuesday, October 21	**Atomic Nature of Matter**	**11**
Thursday, October 23	**Atomic Nature of Matter/Solids**	**11/12**
Tuesday, October 28	**Solids,**	**12**
Thursday, October 30	**Liquids**	**13**
Tuesday, November 4	**Gases and Plasma**	**14**
***Thursday, November 6**	**THIRD TEST covers Chapters 10- 14**	
Tuesday, November 11	**Energy, Heat**	**15**
Thursday, November 13	**Heat, Temperature, Expansion**	**15**
Tuesday, November 18	**Heat Transfer**	**16**
Thursday, November 20	**Change of Phase, Weather**	**17**
Tuesday, December 2	**Thermodynamics/Revision**	**18**
Thursday, December 4	**FOURTH AND FINAL TEST covers Chapters 15-18**	

IV. DATES TO REMEMBER

***First Test: Tuesday, September 18**

***Second Test: Thursday, October 9**

***Third Test: Thursday, November 6**

***Fourth and Final Test: Thursday, December 4**

V. EXAMS AND GRADES POLICY

In all, there will be four in class exams/ tests. Dates for these exams are **September 16, October 9, November 6 and December 4**. An asterisk in the timetable above marks these dates. First exam carries 20%, the 2nd, 3rd, and 4th exams carry 25% each, and attendance in lectures, the remaining 5% of the total grades. Bonus points will be added to the final raw score and grades will be curved and/or normalized, depending on the overall performance of the class.

Extra credit problems or writing assignments are designed to accommodate the students good in math or good at writing and searching daily science news making use of the internet and modern information technology. Such problems will be announced in the class and on the black board and assigned to the individuals interested in them. If you are such a person, please see me.

VI. PLEASE REMEMBER

- Students who miss the last exam and do not make alternative arrangements with me before I turn in the grades will be graded 'F.'

- **A MAKEUP EXAM will be allowed only in case of an emergency or for a genuine reason for absence, and supporting documents are required to be fair to everyone**.

- **In case you miss an exam, please contact me immediately and bring a written explanation with you.**

- **All Makeup Exams will be held immediately after the final exam.**

- **As per Temple University policy, grades cannot be communicated by phone or e-mail.**

SUGGESTIONS TO ENJOY THE COURSE AND TO SECURE THE BEST GRADE

1. Always keep up-to-date with the homework.
2. Read whatever you can easily understand, prior to coming to class.
3. NEVER hesitate to ask if you have a question. See me after the class or during my office hours, or even get in touch on the phone about a question that you may have. It will be my pleasure to discuss Physics with you.

4. Make the best use of the help provided by the teaching assistants in the Physics Department. Hours and room number will be announced shortly.

5. There is very little mathematics used in this course. In any case, do not be frightened by the mathematics. It is used to make Physics easy. If it appears that it is making things difficult for you, perhaps you need to relax a bit and go over it with me or someone else.

6. In summing it up, Physics is no more difficult than any other subject. You can do as well in Physics as in any other course. Let us try to make the best out of this experience.

BEST OF LUCK