

# Principled of Physics I

## PHYS 1408-H01

Spring 2013

Course Section	PHYS 1408-H01
Instructor	Dr. Sung-Won Lee
Class Time	TT 12:30 pm - 1:50 pm
Class Room	SC 112
Office	SC 117
Office Hours	MWF 2:00-3:00 pm, or by appointment
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Phone	(806) 742-3730
Course Web	<a href="http://highenergy.phys.ttu.edu/~slee/1408/">http://highenergy.phys.ttu.edu/~slee/1408/</a>

### Textbook

Physics for Scientists and Engineers, Serway & Jewett, 8<sup>th</sup> edition. (Brooks/Cole)

### Course Objective

This is the first part of the calculus-based sequence of Introductory Physics. The course is intended for physics majors, and for scientists and engineers with an interest in the most fundamental of all the natural sciences.

### Course Content

Topics discussed in this first semester include kinematics, Newton's laws, fluid mechanics, waves and thermodynamics. This course will cover material from the first 22 chapters in the text.

### Class Time

You are expected to read the chapters indicated in the "Class Schedule" before coming to class. I will assume that you have read the material and discuss the concepts in class. Class attendance is strongly encouraged.

### Homework & Quizzes

There is no better way to learn physics than by applying the principles discussed in class to concrete situations. Homework problems are therefore an essential component of every physics course. There will be weekly homework assignments. This homework will be collected and graded. There will be 20 minute-long quizzes on the dates indicated based on homework assignments and the materials presented in class. There will be 6 sets (see class schedule). Doing well on the homework is crucial to your success in the course. You are encouraged to start working on the homework soon after it is assigned, and discuss the problems/solutions with your fellow students.

## Exams

- There will be two midterm exams and a final exam (see Class Schedule for dates).
- The exams are closed book. Note cards, smart phones, iPad and other gizmos are not allowed. Calculators are allowed.
- The final exam is comprehensive (covering all chapters).
- There will be no make-up exams.

## Lab & Recitation:

The lab is an integral part of this course. Separate enrollment in either the lecture or the lab part of the course is not possible. You need to be signed up for one section of each. Preferably the sections linked to this honors lecture section. You will perform experiments, analyze the results of these experiments and write lab reports in which these activities are described. You will receive a separate lab syllabus. Lab is a required portion of the course, as is the recitation section. Recitation will help you with concepts and problems, which figure into your homework grades, and exam grades. Recitation is a very important part of the course.

- Lab: Monday 11:30 am – 12: 50 pm (Sci. 105)
- Recitation: Monday 3:00 pm – 3:50 pm (Sci. 105)

## Attendance

I expect all will attend class and participate in discussion. If you have an excuse for not coming to class, you can call or e-mail me.

## Grading

The course grade will be based on 2 midterm exams, the final exam, Homework, quizzes, and labs. **NO MAKEUP EXAMS WILL BE GIVEN.** Your letter grade will, tentatively, be determined according to the following scale: A (85-100), B (75-85), C (65-75), D (55-65) and F(0-55).

Midterm Exam 1	15%
Midterm Exam 2	15%
Final Exam	20%
Homework & Quizzes	30%
Lab	20%
<b>Total</b>	<b>100%</b>

## Course Goals

This course is intended to acquaint students with the basic laws of physics, to develop a better understanding of physical science in general, and help prepare you for other upper division science classes. To this end, the course will emphasize a mix of conceptual understanding and standard "end-of-chapter" homework solving skills.

## Core Competency Statement

Students graduating from Texas Tech University should be able to explain some of the major concepts in the Natural Sciences and should be able to demonstrate an understanding of scientific approaches to problem solving and ethics.

### **Expected Learning Outcomes:**

Upon successful completion of this course, students will be able to:

Describe the basis of the scientific method.

Distinguish between a scientific theory and speculation.

Explain at a quantitative level the fundamental elements of energy and motion.

### **Methods for Assessing the Expected Learning Outcomes:**

The expected learning outcomes for the course will be assessed through: Guided Classroom Discussion, Lab Exercises, Homework, In-class Exams, and the Final.

### **Important Notes**

It is the aim of the faculty of Texas Tech University to foster a spirit of complete honesty and a high standard of integrity. Plagiarism is not tolerated. As stipulated in Texas Tech Academic Regulations "*Plagiarism*" includes, but is not limited to, the appropriation of, buying, receiving as a gift, or obtaining by any means material that is attributable in whole or in part to another source, including words, ideas, illustrations, structure, computer code, other expression and media, and presenting that material as one's own academic work being offered for credit. Any student who fails to give credit for quotations or for an essentially identical expression of material taken from books, encyclopedias, magazines, Internet documents, reference works or from the themes, reports, or other writings of a fellow student is guilty of plagiarism.

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Any student who, because of a disability, may require special arrangements in order to meet the course requirements should contact the instructor as soon as possible to make any necessary arrangements. Students should present appropriate verification from Student Disability Services during the instructor's office hours. Please note instructors are not allowed to provide classroom accommodations to a student until appropriate verification from Student Disability Services has been provided. For additional information, you may contact the Student Disability Services office at 335 West Hall or 806-742-2405.

### **Strategy for Success**

- Be prepared! Study your notes and read the material in the text *before* we cover it in class. This will help you keep up; will make for more productive classroom interaction.
- Begin all homework assignments as soon as possible. The assignments take time and thought. The homework isn't graded separately, but the test questions are based on the problems you do in the homework. Homework is essential to pass.
- Once you can work through a problem with your notes, book, study group, etc., write the question down on a blank sheet of paper and then try to rework it entirely on your own a day or so later.
- Never wait until the night before a test to "begin" studying.
- The course schedule is fast. Don't get left behind.
- Come see your instructor whenever you have any question. I am always willing to help anyone who tries. There are also TAs, SI instructors, and help sessions available.

# PHYS 1408-H01 Tentative Schedule Spring 2013

Week	Topic	Chapter	Tuesday	Thursday
1	Physics & Measurement Motion in One Dimension	1 2		1/17
2	Motion in One Dimension Vector	2 3	1/22	1/2
3	Motion in Two Dimensions	3	1/29	1/31 <b>Quiz.1</b>
4	Law of Motion	5	2/5	2/7
5	Circular Motion and Other Applications	6	2/12	2/14 <b>Quiz.2</b>
6	Energy of a System Conservation of Energy	7 8	2/19	2/21
7	Linear Momentum & Collisions	9	2/26 <b>Exam.1</b>	2/28
8	Rotation of Rigid Object Angular Momentum	10 11	3/5	3/7 <b>Quiz.3</b>
9	<b>SPRING VACATION</b> (3/9 – 3/17)		3/12	3/14
10	Angular Momentum	11	3/19	3/21
11	Static Equilibrium & Elasticity	12	3/26	3/28 <b>Quiz.4</b>
12	Universal Gravitation Fluid Mechanics	13 14	4/2	4/4
13	Fluid Mechanics Oscillatory Motion	14 15	4/9	4/11 <b>Quiz.5</b>
14	Wave Motion	16	4/16 <b>Exam.2</b>	4/18
15	Sound Waves Superposition & Standing Waves	17 18	4/23	4/25 <b>Quiz.6</b>
16	Thermodynamics Part.1	19,20	4/30	5/2
17	Thermodynamics Part.2	21,22	5/7	
18		16	5/14 Final Exam	

## Important Dates

- 1/17** First Day of Class
- 3/9-17** Spring Vacation
- 5/7** Last Day of Class
- 5/14** Final Exam (1:30 pm – 4:00 pm)