

# Principles of Physics I

## Physics 1408-001

## Spring 2009

Professor	Dr. David Lamp
Time	MWF 8:00-8:50
Place	SC 7
HW Course ID	LAMP2009SPRING
Office	SC 21/23
Hours	MTWRF 1-3 or open door
E-mail	David.Lamp@ttu.edu
Phone	(806) 742-3234 or 742-3767

**Texts:** *Physics For Scientists And Engineers*, 4<sup>th</sup> edition, by Giancoli (ISBN 013-227559-7 or 978-013-227559-0) bundled with *Mastering Physics* student access kit. Comparison shop this text; it is way expensive. It is available at all 4 bookstores in town and on-line, prices vary. Laboratory Manual *Principles of Physics I*, ISBN 9780470478516 is available at all 4 bookstores, prices vary strongly.

**Course Coverage:** The course will cover material from the first 16 chapters in the text. We will cover kinematics, mechanics, statics, rotation, fluids, mechanical waves, and sound.

**Grading Policy:** The following scores will be accumulated during the semester: In-Class Quizzes; Labs; On-Line Homework; Exam 1; Exam 2; Exam 3; Final. The course grade will be based on the quizzes, labs, on-line homework, two of your three exam scores, and the final. **NO MAKEUP EXAMS OR QUIZZES WILL BE GIVEN.** The lowest grade of the 3 in-class exams will be dropped. So, only the highest 2 of the 3 one-hour exams will count in determining your course grade, but your final exam grade will count. Each of these exams is worth 25% of the course grade. The remaining 25% comes from the lab section, on-line homework, and in-class quizzes equally.

Your letter grade will, tentatively, be determined according to the following scale: 50 D; 65 C; 80 B; 90 A.

Hour exam (highest of the 3)	25%
Hour exam (next highest of the 3)	25%
Hour exam (lowest of the 3)	0%
Final	25%
1/3 Lab, 1/3 Homework, 1/3 Quizzes	25%
Total	100%

**Quizzes:** Unannounced in-class quizzes based on assigned reading, homework, labs, and material covered in class will be given. The timing for administering these quizzes will be unknown to the students and the quizzes cannot be made up. These quizzes are an 'attendance mechanism'. In other words, "attend class or you'll lose points."

**Labs:** The lab portion of the course has a separate syllabus that you will receive in the lab. In short, do the lab, write up the lab, attend recitation, learn how to do the problems. Lab is a required portion of the course. Recitation will help you with problems which figures into your quiz grade, homework grade, and exam grades. Recitation is a very important part of the course.

**Homework:** Homework problems are assigned and graded on the web through the commercial site MasteringPHYSICS. Once you are registered at that website you will be able to download the assignments. The assignments and due dates are posted. You will be able to retrieve the answers after the due date. Pay attention to the instructions on the homework website about how the homework is scored.

To access MasteringPHYSICS you must register at [www.masteringphysics.com](http://www.masteringphysics.com). Instructions are in the Student Access Kit. Please do this ASAP. The HW course ID is "LAMP2009SPRING" and there is no class password. If you do not have a Student Access Kit (part of the text for the course), you will need to purchase one through the MasteringPHYSICS website. This website is not at TTU and you should give yourself plenty of time to submit answers. Sometimes the network can be slow or down.

The value of the assigned homework problems is that they are the basis for the in-class quiz problems and of the problems on your exams. Doing well on the homework is crucial to your success in the course. The single best indicator of success in the course is success with the homework. We've done the experimental study, you must do the homework in order to do well in the course. Do not let the small percentage weight delude you into thinking these homework problems are in some way optional. They are the single best factor in determining how you do in the course.

**Exams:** Three one-hour exams will be given. The lowest of these 3 exams will be dropped from the calculation of your course grade. You may bring a 3x5 note card to the exams. This note card can be used to list any equations or words that help you in solving physics problems.

**Final:** A comprehensive final exam will be given. Each lecture section will give its own final exam. You may bring note cards to the final as well.

1

### **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 to demonstrate an understanding of scientific approaches to problem solving, including 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: non-Graded Pre- and Post-Tests, Guided Classroom Discussion, Graded Quizzes, Lab Exercises, Homework, In-class Exams, and the Final.

### **Important Notes:**

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.

The faculty is strongly committed to upholding standards of academic integrity. These standards, at the minimum, require that students **never** present the work of others as their own.

### **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, and will help keep you prepared for those unannounced in-class quizzes that will make up part of your semester grade.
- Begin all homework assignments as soon as possible. The assignments take time and thought. The homework isn't graded separately, but the quizzes and test questions are based on the problems you do in the homework. Homework is essential to pass.
- Build a study group or join one. Students helping each other is very effective. Do not join a study group because you all share an interest in a football team or a particular flavor of music. You need a mix of strong and weak students.
- 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 when you get stuck--that's why they pay me the big bucks! I am always willing to help anyone who tries.
- There are also TAs, SI instructors, and help sessions available. Avail yourself of all resources.

# TENTATIVE SCHEDULE FOR Spring 2009 1408-001

	W January 7 Syllabus Pre-Test	F January 9 1 Measurement & Estimation 2 1-D Kinematics
M January 12 2 1-D Kinematics	W January 14 2 1-D Kinematics	F January 16 3 2-D & 3-D Kinematics
M January 19 No Class MLK, Jr Day	W January 21 3 2-D & 3-D Kinematics	F January 23 3 2-D & 3-D Kinematics
M January 26 3 2-D & 3-D Kinematics	W January 28 4 Dynamics & Newton's Laws	F January 30 4 Dynamics & Newton's Laws
M February 2 4 Dynamics & Newton's Laws 5 Using Newton's Laws	W February 4 5 Using Newton's Laws	F February 6 5 Using Newton's Laws
M February 9 Exam 1 Chapters 1, 2, 3, 4, and 5	W February 11 6 Gravity & Newton's Synthesis	F February 13 6 Gravity & Newton's Synthesis
M February 16 7 Work & Energy	W February 18 7 Work & Energy	F February 20 7 Work & Energy
M February 23 8 Conservation of Energy	W February 25 8 Conservation of Energy	F February 27 8 Conservation of Energy 9 Linear Momentum
M March 2 9 Linear Momentum	W March 4 9 Linear Momentum	F March 6 Exam 2 Chapters 6, 7, 8, and 9
M March 9 10 Rotational Motion	W March 11 10 Rotational Motion	F March 13 11 Angular Momentum
M March 16 SPRING BREAK	W March 18 SPRING BREAK	F March 20 SPRING BREAK
M March 23 11 Angular Momentum	W March 25 12 Static Equilibrium	F March 27 12 Static Equilibrium
M March 30 12 Static Equilibrium	W April 1 13 Fluids	F April 3 13 Fluids
M April 6 13 Fluids	W April 8 Exam 3 Chapters 10, 11, 12, and 13	F April 10 14 Oscillations
M April 13 NO CLASS Easter	W April 15 14 Oscillations	F April 17 15 Waves
M April 20 15 Waves	W April 22 16 Sound	W April 24 16 Sound
M April 27 16 Sound	W April 29 Dead Day	F May 1 7:30-10:00 am FINAL EXAM Comprehensive 1 through 16