

PHYS 2401: Principles of Physics II
Spring 2012

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Schedule: MWF 11:00am – 11:50am in SC 10

Office Hours: MWF 12:00pm-1:00pm or by appointment.

Prerequisites: PHYS 1408; MATH 1352.

Core Purpose Statement: Students graduating from Texas Tech University should be able to demonstrate problem solving skills and critical thinking skills, such as the development and use of models that are consistent with experimental evidence. This is consistent with the objectives for the Natural Science Core Curriculum Objectives listed below and will be demonstrated by the Learning Outcomes listed below.

Core Curriculum Objective: The objective of the study of the natural sciences component of a core curriculum is to enable the student to understand, construct, and evaluate relationships in the natural sciences, and to enable the student to understand the bases for building and testing theories. The natural sciences investigate the phenomena of the physical world.

Expected Learning Outcomes:

Students should be able to demonstrate problem solving skills and critical thinking skills, such as the development and use of models that are consistent with experiment.

In particular students should

- 1) be able to demonstrate their understanding by the ability to solve problems and answer questions related to the concepts being studied. They should be able to explain concepts clearly to another person (so that the other person understands).
- 2) understand how mathematical models are developed based on experimental evidence. They should be able to demonstrate this by demonstrating the ability to take and analyze data and develop a model based on the data, using graphing and other techniques, which can be used to predict the outcome of other experiments. They should understand the limitations of models and be able to use them to make predictions.

Methods for Assessing Expected Learning Outcomes:

Learning outcomes will be assessed through quiz, homework and exam problems that require students to show their calculation and explain their reasoning and in-class discussions with their peers.

Course Text: Physics for Scientists and Engineers, 4th edition, Douglas C. Giancoli, (Pearson Prentice Hall, Upper Saddle River, NJ, 2004).

Course Coverage: Electricity, Magnetism and Optics.

The Nature of the Course: The course will be taught interactively. You will be asked to work with other students during class to make predictions or solve problems. You may be called upon during class to present a prediction or a solution. The focus of the course is on problem solving and critical thinking, not memorizing equations to get an answer. The process by which you solve a problem is more important than the final answer. You will be graded on your process on homework, quizzes and exams.

Class participation and written class homework: Class participation and written class homework will count as 10% of your grade. This includes coming to class and participating each day, not coming late, not leaving early, participating when asked, etc., It also includes written homework assignments which are homework assignments written out by hand and turned in for grading. Written homework is due at the beginning of the class on the day it is due. After the beginning of class, it is late. If you show up late for class, it is late. No homework will be accepted late. In addition, there may be pre-tests, post-tests, journals, surveys, and questionnaires that will count as part of your participation grade. This is an important part of the class.

Laboratory: Laboratory is an important part of this course. The laboratory is where you will learn about the physics of electricity and magnetism through physical experimentation. In the laboratory, you will enhance your understanding of concepts through experimentation, as well as learn how to design experiments, take and analyze data and develop models based on your experimentation. There may be quizzes and lab homework that will count as part of your laboratory grade. Laboratory will count as 15% of your grade.

Recitation: You are required to attend a recitation section regularly, once a week, as in your schedule. In recitations, you will work on problem solving in groups with other students and the help of a TA. You will also have quizzes in recitation and be assigned homework to be written out by hand and turned in each week. In addition, you will have time to ask for help with homework problems, if needed.

Homework: In addition to written class homework, we will use the mastering physics homework system that you purchased with your textbook. Mastering physics homework will be assigned weekly. Mastering physics homework assignments must be completed on the computer by the due date. No homework will be accepted late. Mastering Physics homework will be graded and will count as 10% of your grade.

Mastering Physics: In order to enroll in Mastering Physics, you will need

- 1) the Course ID: THACKERSPRING2012
- 2) the code that comes with your textbook
- 3) your email address

If you purchased a used text and your text did not come with Mastering Physics, you will be given the opportunity to purchase it online when you register.

Pre-tests, post-tests and surveys: Pre-tests, post-tests and surveys may be given during class. These will not be graded, but they will be counted as part of your participation grade. You will receive full credit, if you do them and lose participation points, if you don't.

Exams: There will be three midterm exams and a final exam. Each midterm exam will count 10% of your grade and the final will count 20% of your grade.

Midterm exam 1	February 15, 2012
Midterm exam 2	March 28, 2012
Midterm Exam 3	April 25, 2012
Final Exam	Saturday, May 12, 2011, 1:30pm – 4:00pm

Grades: The grades will be distributed as follows:

Class participation and written class homework	10%
Mastering Physics homework	10%
Recitation	15%
Laboratory	15%
Midterm 1	10%
Midterm 2	10%
Midterm 3	10%
Final Exam	20%

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 in 335 West Hall or 806-742-2405.