

PHYS 221, Introductory Physics II
Spring 2012
MTWF 1:25-2:15 PM
ROSS 0060

Instructor : Dr. Wendy Adams
Office : Office 0232C Ross Hall
Hours : MTWF 12:00 – 1:00 and by appointment
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If one is to go on to advanced learning of science and careers in science and related fields, it is a necessary skill to be able to learn, think and take responsibility. It is necessary to be able to solve problems different from any other problem encountered before. Few professionals are hired to grind mindlessly through steps that a computer can execute.

-Richard Steinberg

Objectives:

This course will focus on the process of scientific inquiry, making sense of evidence collected about the world we live in. This will be done in the context of physics specifically in the areas of waves and sound, optics, electricity and magnetism as well as a brief inquiry into modern physics. It provides content necessary to enable teacher licensure students to address [Colorado P-12 Academic Standards in Science](#).

By the end of the course you should be able to

- identify systems of interest and interactions to solve problems, and based on their properties choose the best method to solve the problem and implement it.
- describe and calculate wave motion and other wave effects.
- use geometric optics to identify images created by mirrors and lenses.
- describe and calculate electrostatic and magnetic interactions as well as basic circuit behavior.
- describe the general areas of modern physics and how scientists use these ideas.
- accept or reject standard theories based on measurements in the lab.

Prerequisite:

Physics 220, college algebra and basic trigonometry. This course involves intensive problem solving so a working knowledge of algebra is necessary.

Required Materials:

1. *College Physics* by Serway and Vuille 9th Edition
2. Scientific calculator – must have scientific notation and trig functions
3. Pencil and **big** eraser

Course Website:

<http://www.unco.edu/nhs/physics/faculty/adams/index.html>

Grading:

| Method of Assessment | Approximate weight |
|-----------------------------|--------------------|
| Home Work | 10% |
| Quizzes/In Class Activities | 10% |
| Exams | 40% |
| Final exam | 20% |
| Lab | 20% |

Grading will be on the +/- scale.

You must *show all your work* for credit on homework, quizzes and exams.

Homework:

Homework assignments will be assigned weekly and will generally be due each Tuesday *before* class begins. Late assignments will receive half credit if received before class begins on the following class day. You will be graded on your work. Answers will be provided in advance.

Quizzes:

There will be a minimum of one quiz and/or in-class activity per week. There will also be some online quizzes. One in-class quiz will be dropped – no exceptions. Equations will be given on each quiz.

Exams:

Exam 1: February 7, Exam 2: March 6, Exam 3: April 3, Exam 4: April 24.

Exams will contain a combination of conceptual and long hand type problems. Demonstration of complete understanding of the concept and all work must be shown for credit. Equations will be supplied on each exam.

Final Exam:

The final exam is cumulative and scheduled for Tuesday, May 1, 2012 from 1:30 PM to 4:00 PM. Students will be expected to take the exam at this time and should **NOT** make plans that conflict.

Student Expectations:

- Students are expected to work an average of 2 hours outside of class for each hour spent in class.
- Students are expected to follow UNC's Honor Code and Student Code of Conduct
<http://www.unco.edu/dos/communityStandards/index.html>

Disabilities:

Students with disabilities who believe they may need accommodations in this class are encouraged to contact Disability Support Services (970) 351-2289 as soon as possible to better ensure that accommodations are implemented in a timely fashion. Students with accommodations must provide the disability access form at least 3 days before accommodations are needed.

There will be no make-up exams or quizzes! If you are going to miss class, arrangements must be made in advance.

Everything on this syllabus is subject to revision throughout the semester; however, adequate notice will be given.