

PHYS 1420: College Physics 2
Dr. Stephen Addison
Office: LSC 169, Telephone: 450-5900
saddison@uca.edu
<http://faculty.uca.edu/saddison/>

Scheduled Classes		
Class	TTh 8:00-9:15	LSC 168
Lab	F 1:00-3:40	LSC 112

Required Text

CollegePhysics, 6th Ed., by Jerry D. Wilson, Anthony J. Buffa, and Bo Lou. *College Physics* was the text for College Physics 1 last spring. The College 1 sections are using a different text this fall. This is the last time that this book will be used.

Required Supplies

Calculator: You will need a good scientific calculator - it will need to have trigonometric functions and logarithms on it. While a graphing calculator is not needed you will find that the calculator that you used for College Algebra will be fine. You may not use a cell phone or PDA (or any other device with text-messaging capabilities) as a calculator on quizzes or exams.

Lab notebook: You will also need a hard bound quadrille-ruled lab notebook. These are available at the bookstores and most of the big-box stores - they cost less at the bookstores.

Catalog Description

1420 COLLEGE PHYSICS 2 Continuation of College Physics 1. Introduces the student to simple harmonic motion, waves, sound, electricity, magnetism, and light and modern physics. Lecture and laboratory. Prerequisite: PHYS 1410.

Course Overview

This course is designed for biology, health science, pre-medical, pre-dental majors - and for any other students who want an algebra/trigonometry-based introduction to physics. The course provides an introduction to electricity and magnetism, light and optics, and modern physics.

Course Goals

This course is designed to provide a clear and logical presentation of the basic principles of physics, and to strengthen understanding of the concepts and principles through a broad range of applications. The course is also designed to develop skills in the methods of theoretical and experimental physics.

Topics

Our goal is to cover the material outlined below. Topic coverage is based on *College Physics, 6th Ed.*, by Wilson, Buffa, and Lou. Weekly laboratory sessions complement in class instruction and are coordinated with classroom topics.

Topics to be covered include:

Electrostatics (Week 1)

Chapter 15: Electric Charge, Forces, and Fields; Sections 15.1, 15.2

Electric fields, potential, and energy (Weeks 2, 3 and 4)

Chapter 15: Electric Charge, Forces, and Fields; Sections 15.3, 15.4, and 15.5

Chapter 16: Electric Potential, Energy and Capacitance

Current and resistance (Week 5)

Chapter 17: Electric Current and Resistance

DC circuits (Week 6 and 7)

Chapter 18: Basic Electric Circuits

Magnetism (Week 8)

Chapter 19: Magnetism

Induction (Week 9)

Chapter 20: Electromagnetic Induction and Waves

Electromagnetic waves (Week 10)

Chapter 20: Electromagnetic Induction and Waves

Light (Week 11)

Chapter 22: Reflection and Refraction of Light

Geometric optics (Week 12)

Chapter 23: Mirrors and Lenses

Chapter 25: Vision and Optical Instruments

Physical optics (Week 13)

Chapter 24: Physical Optics: The wave Nature of Light

Topics in modern physics (Week 14)

Selected from:

Chapter 26: Relativity

Chapter 27: Quantum Physics

Chapter 28: Quantum Mechanics and Atomic Physics

Chapter 29: The Nucleus

Chapter 30: Nuclear Reactions and Elementary Particles

Web Page

I will establish a web page for the course. You should check it frequently. It will contain information that will aid your studies in this course - information will include class summaries, assignments, and solutions to assignments, quizzes, and exams. These materials will ordinarily be distributed only through the web site.

Expectations

Students are expected to:

Attend all classes

Complete all assignments

Take exams and quizzes and turn in assignments as scheduled

Ask about any material they don't understand

Actively participate in the class

Attendance

I expect you to attend all classes. If you expect to miss a class, you should discuss it with me before that class is missed. If you miss a class without prior arrangement you are required to provide me with a written explanation. Students who are excessively absent will be dropped for non-attendance. A written warning will be provided to any student who is in danger of being dropped for non-attendance. Laboratory attendance is mandatory. Missing more than one laboratory will result in a written warning.

Punctuality

I will be on time for class, and will be ready to start at 8:00 and I will finish promptly at 9:15 each day. Lateness and/or early departures will not be tolerated.

Cell Phones and Pagers

The use of cell phones and pagers in class is prohibited. They should be turned off. If you are expecting a phone call that is important enough to take during class, the likelihood is that you shouldn't be in class.

Office Hours

I am usually in my office from 8:00 to 4:30. You can see me if I am available. If I am not available, my secretary will make an appointment for you. You can also call my secretary at 450-5900 to schedule an appointment. Scheduled office hours are Monday, Wednesday, and Friday from 10:00 to 11:00, and 2:30-4:30 on Tuesdays.

Testing and Grading

Tests will usually occur no earlier than the second class period after we finish the material for that test. In other words there will always be at least one class period between ending the material and the day of the test. Some tests might be given during lab periods.

Homework will be assigned regularly, it will not usually be collected for grading. Specific homework assignments will be collected and graded. Homework quizzes may be given.

Grades will be determined using the following:

Three 100-point exams

A 200-point, comprehensive final

Approximately 10, 10 point laboratories

Laboratory notebook 50 points

Homework Quizzes, Assigned reading quizzes, lab quizzes up to 150 points. These will be given in lab on Fridays.

Homework assignments as noted on the assignment.

Tests will include problems, derivations of key equations, numerical computations and short essays. Multiple choice questions could be used on some tests. The points earned throughout the course will be converted to a percentage. Grades earned will be determined by the following scale:

A 90 +

B 80-89

C 70-79

D 60-69

F 0-59

Please note that I round all scores upward.

Study Tips

The best way to perform well in this class is to come prepared for class. This includes reading the material in the textbook *before* we discuss it in class. By doing this you will be better able ask appropriate questions in class. Learning physics is not a passive exercise - study with a pencil in hand - try the problems. Don't wait until solutions are distributed!

Academic Integrity

Plagiarism, copying from others on tests, the use of unauthorized materials on tests (cheat sheets, programmed calculators, etc.), or any other form of academic misconduct will not be tolerated. Penalties for academic misconduct are described in the UCA Student Handbook. Penalties can include grade reduction on an assignment or in a course and can extend to expulsion from UCA. Further details about these procedures are described in the UCA Student Handbook.

Americans with Disabilities

The University of Central Arkansas adheres to the requirements of the Americans with Disabilities Act. If you need an accommodation under this Act due to a disability, please contact the UCA Office of Disability Services, 450-3135.

University Policies

Students are expected to be familiar with the general policies of the university. I encourage you to read the UCA Student Handbook where these policies are described. For your convenience, some page references are provided below:

Academic Policies (beginning on page 31 of the 2009-2010 Student Handbook)

Sexual Harassment Policy (page 94 of the 2009-2010 Student Handbook)