PHYS 3141 - Introduction to Modern Physics
Fall 2009 Course Syllabus

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Lectures

Lectures are held in Burson 116 on Tuesdays & Thursdays at 2pm-3:15pm.

Office Hours

Contact me anytime you need help or have questions.
Office hours are by appointment.

Course Objectives

This course serves as an introduction to the physics developed in the twentieth century. The objective of this course is to give the student the foundations for understanding the two cornerstones of modern physics: special relativity and quantum mechanics. While this course will mainly focus on technical aspects of these theories, some of the historical context and evolution will be discussed.

Required Text

P.A. Tipler & R.A. Llewellyn, Modern Physics (W.H. Freeman, New York: 2002, 5th ed).

Topics Covered in Lectures

Special Relativity:	Chapter 1 & Chapter 2
Quantization of Energy & Light:	Chapter 3, sections 1-4
The Nuclear Model of the Atom:	Chapter 4, sections 1-3, section 6
The Wave Nature of Matter:	Chapter 5, sections 1-5
The Wave Equation:	Chapter 6, sections 2 & 6

Grading Scheme

5 **tests**, each worth 15%	Tests: 75%
5 short **homework assignments**, each worth 5%	Homework: 25%

Bonus points:

5 **bonus homework** questions, each worth 2%	Bonus homework: 10%
1 **bonus exam question** on final exam	Bonus exam question: 5%

Important Dates

Test 1: Relativity, Homework 1 due	September 22
Test 2: Quantization, Homework 2 due	October 15
Test 3: Bohr's model of the Atom, Homework 3 due	November 3
Test 4: Wave Nature of Matter, Homework 4 due	November 24
Test 5: Wave Equation, Bonus exam, Homework 5 due	December 15 ("Final Exam")

Expectations for Tests

- The tests are closed book and closed notes. A general formula sheet will be provided. I strongly encourage all students to contribute to the creation of the formula sheet for each test.
- For each chapter, you will be assigned practice problems, and you will be expected to do these. **Most test questions will be taken directly out of the assigned practice problem sets.**
- You will be expected to know and understand derivations done in class, and you will be tested on these.

General Expectations

- You are expected to do practice homework problems at the pace that the material is covered in lectures. Keep in mind that many concepts introduced in lectures build on one another.
- If you are stuck on a practice problem, or if you have missed something or if you have fallen behind, you are expected to seek my help, and to communicate your difficulties.

Course Policy

- Grades are assigned using a 10-point grading scale:
    - A = 90.0-100.0, B = 80.0-89.9, C = 70.0-79.9, D = 50.0-69.9
- **LATE ASSIGNMENTS WILL NOT BE ACCEPTED**.
- Grades will not be "curved" or adjusted in any way. Your actual score on your tests and homework will be reflected in your final grade.

Academic Integrity

Students have the responsibility to know and observe the requirements of The UNCC Code of Student Academic Integrity (see Catalog or see http://www.legal.uncc.edu/policies/ps-105.html). This code forbids cheating, fabrication or falsification of information, multiple submissions of academic work, plagiarism, abuse of academic materials, and complicity in academic dishonesty. Any special requirements or permission regarding academic integrity in this course will be stated by the instructor, and are binding on the students. Academic evaluations in this course include a judgment that the student's work is free from academic dishonesty of any type; and grades in this course therefore should be and will be adversely affected for academic dishonesty. Students who violate the code can be expelled from UNCC. The normal penalty for a first offense is zero credit on the work involving dishonesty and further substantial reduction of the course grade. In almost all cases the course grade is reduced to F. Students are expected to report cases of academic dishonesty to the course instructor.