PHYS 3141 Introduction to Modern Physics

Contact Information

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Course Information

The course meets in 116 Burson on Tuesdays and Thursdays from 2:00pm-3:15pm.

Office Hours

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

Required Text

P.A. Tipler & R.A. Llewellyn, Modern Physics (W.H. Freeman, New York: 2008, 5th ed).

Grading

5 tests, each worth 15%	Tests: 75%
5 quizzes, each worth 3%	Quizzes: 15%
5 homework assignments, each worth 2%	Homework: 10%

Course Policy

Grades are assigned using a 100-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 adjusted in any way. Your actual score on your tests and homework will be reflected in your final grade.
Optional test: you can take optional test and replace the worse score of tests 1-5 with the result of the optional test. Optional test result will not decrease your grade.

Expectations for Tests

The tests are closed book and closed notes.

Homework

You will be expected to be prepared for each class. Keep up with assigned reading from Tipler and Llewellyn.
Homework will be due in class on the day of the test. No late homework will be accepted.

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.

If you have a disability that qualifies you for academic accommodations, please provide a letter of accommodation from Disability Services in the beginning of the semester. For more information regarding accommodations, please contact the Office of Disability Services at 704-687-4355 or stop by their office in 230 Fretwell

Tentative Schedule of Topics

Lecture 1	Relativity The Experimental Basis of Relativity The Michelson-Morley Experiment
Lecture 2	Einstein's Postulates The Lorentz Transformations
Lecture 3	Time Dilation Length Contraction
Lecture 4	The Doppler Effect
Lecture 5	Conservation of relativistic energy and momentum Mass-Energy Conversion
Lecture 6	Quantization of electric charge
Lecture 7	Blackbody radiation Planck's law

Lecture 8	The Photo-electric effect
Lecture 9	The Compton effect
Lecture 10	The nuclear model of the atom Atomic Spectra Rutherford's Nuclear Model
Lecture 11	Bohr's Model of the Atom
Lecture 12	Bohr's Model of the Atom
Lecture 13	The Wavelike Properties of Particles The de Broglie Hypothesis Measurements of Particle Wavelengths
Lecture 14	Wave Packets Probabilistic Interpretation of the Wavefunction
Lecture 15	The Uncertainty Principle
Lecture 16	The Schroedinger Equation
Lecture 17	The Infinite Square Well
Lecture 18	The Finite Square Well
Lecture 19	Expectation Values and Operators

Plus:

Five reviews of practice problems

Five tests

One optional test