PHYSICS 3710/01 Modern Physics
TTh 9:30-11:30 H-250
Fall 2015

Textbook: *Modern Physics* by Paul A. Tipler and Ralph A. Llewellyn 6th Edition

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Office Hrs. MF (10:00-11:00) TTh(11:30-12:30) email: rpatri11@kennesaw.edu
and by appointment

Tentative Syllabus

Week of	Material Covered		
8/17	Ch. 3	Quantization of Charge, Light, and Energy I	
8/24	Ch. 3	Quantization of Charge, Light, and Energy II	
8/31	Ch. 4	The Nuclear Atom I	
9/7	Ch. 4	The Nuclear Atom II	**Test 1**
9/14	Ch. 5	Bohr's Model of the Atom I	
9/21	Ch. 5	Bohr's Model of the Atom II	
9/28	Ch. 5	Wave Packets	
10/5*	Ch. 5	Uncertainty Principle	
10/12	Ch. 6	Schrödinger's Equation I	**Test 2**
10/19	Ch. 6	Schrödinger's Equation II	
10/26	Ch. 6	Schrödinger's Equation III	
11/2	Ch. 7	Hydrogen Atom	
11/9	Ch. 7	Spin and Angular Momentum	
11/16	Ch. 7	Many Electron Atoms	**Test 3**
11/23	**Term Break – No Classes**		
11/30	Ch. 8	Statistical Physics	
12/7**	Ch. 8	Statistical Physics	

Grade Determination

Exams (3)	45%
Homework	25%
Attendance/participation	10%
Final	20%

Important Dates

*Last day to Withdraw	Wed. Oct. 7
**Last Day of Classes	Mon. Dec. 7
***Final Exam	TBA

Reference Texts
Halliday and Resnick - *Fundamentals of Physics*
Serway and Jewett – *Physics for Scientists and Engineers*
Eisberg and Resnick - *Quantum Physics*
OHanian - *Modern Physics*

Attendance is highly recommended for all classes. **If you miss a class, you are responsible for all notes, changes, and announcements made in that class.**

Homework assignments are due the beginning of class, with all work shown for each problem. Do **NOT** copy other student's homework. In class exams and the final exam will be open book and I will allow one page of notes. There will be **NO** make-up exams.

KSU has an Honor Code and a procedure relating to when academic misconduct is alleged. All students should be aware of them. Information about the Honor Code and the misconduct procedure may be found at https://web.kennesaw.edu/scai/content/ksu-student-code-conduct

Any student with a documented disability or medical condition needing academic accommodations of class-related activities or schedules must contact the instructor immediately. Written verification from the KSU Student Disability Services is required. No requirements exist that accommodations be made prior to completion of this approved University documentation. All discussions will remain confidential. (http://www.kennesaw.edu/stu_dev/dsss/welcome.html)

Learning Outcomes for Physics 3710

1. Describe the major aspects of the following experiments and explain their historical significance
    - Blackbody Radiation
    - Millikan's Oil Drop experiment
    - Photoelectric Effect
    - Compton Effect

2. Explain the Rutherford model of the nucleus and Bohr model of the atom. Be able to compare these to classical pictures of the nucleus and atom.

3. Contrast the wave nature of light with the particle nature of light. Discuss Heisenberg's uncertainty principle.

4. Use Schrödinger's equation to solve various simple systems (i.e. infinite square well)

5. Solve Schrödinger's for the hydrogen atom. Be able to explain the quantum numbers.