Modern Physics
PSC 3183-001 Fall 2009

Instructor:	Dr. Kevin Storr
Text:	*Modern Physics,* 7th ed., Serway, Moses and Moyer
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Classroom:	New Classroom Building, 303
Course Website:	http://www.i2i.pvamu.edu/physics/kevinstorr.htm
Homework Website:	

Time	Office Hours
Mon. & Wed 3-4:20	MWF 12 – 2 pm

NOTE

The subject matter in the lectures will follow the text; however minor, additional relevant material may be presented from information not found in the text.

COURSE DESCRIPTION

3 Credit semester hours. Modern Physics introduces us to the Physics of the 20th Century with a little 21st century included. It is all that stuff, over the past 100+ years that was not covered in your 2 semester Physics courses. The topics covered will give you a fonder appreciation of present technology as well as a glimpse into the future. The lectures will bend your thinking and provide you with a new paradigm of Physics. Just wait and see. We will travel close to the speed of light with Relativity, study the Physics of the microscopic world with Quantum Mechanics and attempt to answer the question of *"where is the particle?"* Solid State Physics, Statistical Physics, Nuclear Physics, High Energy Physics and Cosmology – the journey will be exciting. We will even touch on one of the hot topics of physics today - Nanoscience. We will not cover every topic detail; instead, I will expose you to some of the most groundbreaking experiments and theories of the modern Physics era. In essence you may think of this course as Physics part 3!

COURSE POLICIES

This course will use several instructional format to increase students understanding and retention of subject matter. Selected materials in each chapter will be covered during the lectures. Students should read the entire assigned chapters prior to class as lectures alone are insufficient for material proficiency. Lecture will be used to amplify and explain the materials found in the textbook. Homework problems will be assigned during the entire semester for each chapter covered and will be turned in on time. Some homework will incorporate an experiment or two. It is expected that you will need to spend at least two hours studying outside the class for each hour spent in class (**minimum of 6 total hours per week**).

REQUIREMENTS

1. Each week a set of homework questions or project shall be assigned from the text, which will assist in determining your competency of the information presented. Assignments are due on specified due dates and times.
2. Exams will be periodically given following the completion of every even chapter. There will be a comprehensive final exam given at semester's end.
3. Makeup exams and missed homework are allowed for officially excused absences. The only valid excuses for missing an exam or failing to turn in homework on time are illnesses requiring medical care, **required** University activities or a personal emergency of a **serious nature**. To be excused without penalty, you must contact me as soon as possible and provide **documentation** or have received **prior permission**. In such cases only a week is allowed for a makeup. Work conflicts, computer or car problems, forgetting or oversleeping are not valid excuses. Arrangements can be made ONLY if you have contacted me before the exams are returned (generally the next class period). In the remote cases where late work is allowed, the maximum allowed score is 70% of the total.
4. Please turn off (set to vibrate) all cell phones prior to lecture beginning. Baseball caps are not to be worn during the lecture.
5. If you miss class contact a peer for information missed. My notes are available upon request.
6. **Academic Dishonesty/Cheating:** You are responsible to know the elements of academic dishonesty, plagiarism, cheating etc., as set forth in PVAMU *Student Handbook*. PVAMU allows no form of collaboration in the preparation of papers or in the taking of quizzes or exams. Work on paper, quizzes, and exams must be totally your own. You should neither request nor give help. The penalty for violating the PVAMU Academic Honor Code in this class is a score of zero for the quiz, exam, or paper in which the violation occurs.

HOW TO SUCCEED IN Phys 3183

1. Attend **EVERY** class.
2. **READ** the assigned chapter **BEFORE** class.
3. Do NOT wait until the day before the exam to study. Review notes DAILY.
4. Check with your instructor as soon as possible if you do not understand a concept.
5. Plan TWO (2) hours, THREE times a week to provide sufficient study time to cover reading, homework, and review.
6. **Form a Study Group. Your study group can provide information that you might miss in class and provide a forum for questions and regular review of class material.**

GRADING SCHEME

Assignment	Points	Grade	Scale (% of total points)
Exams	40	**A**	**90 – 100**
Homework	15	**B**	**80 – 89.99**
Presentation	5	**C**	**70 – 79.99**
Project	5	**D**	**60 – 69.99**
Final	25	**F**	**Below 60**
Total	**100 points**		

Semester Schedule (subject to change)

Week (Starting on)	Topic	Note
1 (Aug. 31)	**Ch. 1**: Intro. to Modern Physics & Special Relativity	
2 (Sep. 7)	**Ch. 2:** Special Relativity	
3 (Sep. 14)	**Ch. 3**: The Quantum Theory of Light	
4 (Sep. 21)	**Ch. 4**: The Particle Nature of Atoms	
5 (Sep. 28)	**Ch. 5:** Matter Waves	**Exam # 1**
6 (Oct. 5)	**Ch. 6:** Quantum Mechanics in One Dimension	
7 (Oct. 12)	**Ch. 7:** Tunneling Phenomena	
8 (Oct. 19)	**Ch. 8**: Quantum Mechanics in Three Dimension	
9 (Oct. 26)	**Ch. 9:** Atomic Structure	**Exam # 2**
10 (Nov. 2)	**Ch. 10:** Statistical Physics	
11 (Nov. 9)	**Ch. 11:** The Solid State and Nanoscience	
12 (Nov. 16)	**Ch. 13:** Nuclear Interactions and Applications	
13 (Nov. 23)	**Chs. 14 & 16** Elementary Particles & Cosmology	**Exam # 3**
14 (Nov. 23)	**THANKSGIVING**	
15 (Nov. 30)	Review , study, and final exam days	
16 (Dec. 7)	Final Examination Period	**Final Exam**