

Principles of Modern Physics

Course description: This is a one-semester Modern Physics course geared primarily towards engineering students. Since there are more topics in the text than time allows for in a one-semester course, we will only cover the course chapters listed in the course schedule below.

Lectures: Tu,Th 3:30-4:45pm Room 1402 Physics Bldg.

Required textbook: "Modern Physics" by Serway, Moses and Moyer, 3rd Ed., Thomson, Brooks, Cole 2005. ISBN 0-534-49339-4

Instructor: Dr. Gary Pennington
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Office Hours: 12-1pm MW, 5-6pm Th

Course Web Site: <http://elms.umd.edu>

Homework will be assigned about once per week and must be turned in at the beginning of class on the specified date (or earlier). Late homework is not accepted without a valid documented excuse.

Exams will be based on material in the text as well as material presented in class. Exams are cumulative. There will be two midterm exams and one final exam. The exams will be given in class, on paper, and will be closed book. You may bring one index card with equations for exam I, two index cards for exam II, and either 3 index cards or a full sheet of paper to the final exam. Physical constants will be provided. You will need a calculator with standard trigonometry functions, etc. Exams must be taken on the day scheduled unless you have a valid documented excuse. Please inform me as soon as possible if you have to miss an exam.

Grade: 20% Homework
25% Midterm Exam I
25% Midterm Exam II
30% Final Exam

How to do well in this course: Read the textbook before material is presented and discussed in class. Come to the lectures. Do all the homework. Ask for help (Instructor, TA, or classmates) whenever there is something you don't understand. Review your notes and past homework assignments before each exam.

(Tentative schedule as of 1/12/11)

<u>Class</u>	<u>Date</u>	<u>Chapter</u>	<u>Topics</u>
	Tu Jan 25	1	Relativity, Lorentz Transformations, Spacetime
	Th Jan 27	1	Relativity, Lorentz Transformations, Spacetime
	Tu Feb 1	2	Relativistic Energy and Momentum
	Th Feb 3	2	Relativistic Energy and Momentum
	Tu Feb 8	3	Quantum theory of light, blackbody radiation
	Th Feb 10	3	Compton scattering, photoelectric effect
	Tu Feb 15	4	Particles
	Th Feb 17	4	Particles
	Tu Feb 22	5	Review of Wave Phenomena
	Th Feb 24		Review for Exam I
	Tu Mar 1	1-4	Exam I
	Th Mar 3	5	Wave/Particle Duality
	Tu Mar 8	5,6	Quantum Mechanics in One Dimension
	Th Mar 10	6	QM Oscillators, Particles in a Box
	Tu Mar 15	6	Quantum mechanics in One Dimension
	Th Mar 17	7	Tunneling and Reflection
			Spring Break
	Tu Mar 29	7	Tunneling and Reflection
	Th Mar 31	7,8	Two Dimensional Particle in a Box
	Tu Apr 5	8	Hydrogen Atom
	Th Apr 7		Review for Exam II
	Tu Apr 12	5-7	Exam II
	Th Apr 14	9	Atomic Structure
	Tu Apr 19	9	Atomic Structure
	Th Apr 21	10	Quantum Statistics
	Tu Apr 26	10	Quantum Statistics
	Th Apr 28	11	Molecular Structure (select topics)
	Tu May 3	12	Solid State (select topics)
	Th May 5	12	Solid State (select topics)
	Tu May 10		Review for the Final
	TBA	1-12	Final Exam

Honor Code: As a student you are responsible for upholding the honor code standards for the University. For more information on the code of Academic Integrity or the Student Honor Council, please visit: <http://www.studenthonorcouncil.umd.edu/whatis.html>

Students with disabilities: Accommodations will be provided to enable students with disabilities to participate fully in the course. Please discuss any needs with your instructor at the beginning of the semester so that appropriate arrangements can be made.

Weather and emergency closures: If the University is closed due to weather or some emergency situation on a day when homework is due, then that homework must be turned in at the beginning of the next class period when the University is open. If the University is closed on the scheduled date of an exam, then the exam will be given during the next class period when the University is open. If the University is closed on any non-exam day, including a review session, then the exam will still be given according to the original schedule. Regularly check the course Elms site to receive information regarding the course schedule.