

PHYSICS 237
Spring 2007 Syllabus

Instructor: Dr. Darin Zimmerman
Office: 106 Science
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Meeting Time / Place: MWF, 10 – 10:50a / 108 Holtzinger

Textbook: *Modern Physics for Scientists and Engineers* (2nd Ed.) by Taylor, Zafiratos, and Dubson

Course Description: Relativity, quantum theory, and statistical mechanics with applications in atomic, molecular, solid state, nuclear, and elementary particle physics.

Grade Weighting: Homework (30%) + Exam 1 (20%) + Exam 2 (20%) + Final Exam (30%)

Letter Grades: Exam scores will be curved and averaged with the other areas and compared to this scale: **A** (94-100), **A-** (90-94), **B+** (87-90), **B** (83-87), **B-** (80-83), **C+** (75-80), **C** (70-75), **D** (60-70), **F** (<60)

Homework: Homework will be assigned and turned in for a grade.

Exams: Exam problems will generally be similar to the homework problems. The final exam will be cumulative. *There will be no make-up exams except in very exceptional cases (death in the family, hospital admittance, etc.)*

Academic Integrity: Cases of academic dishonesty (cheating, plagiarism, fraud, etc.) will be dealt with harshly. Consequences for such behavior may include receiving a failing grade on the exam or in the course and in more serious cases, permanent expulsion from the University. For the details, see *The Student Guide to University Policies and Rules*.

Class Cancellation: In the event that snow or other inclement weather forces a delay or a closing of the campus, class may be cancelled. If this happens you may call my voicemail number above and I will inform you as to whether or not class is indeed cancelled.

Comments: This course provides a nearly complete overview of modern physics in three major areas: Einstein's Theory of Special Relativity, quantum mechanics, and statistical mechanics. The theory and applications that we study will provide a good background for many fields in science and engineering and are a bridge to the upper division courses in these areas. As many of you already know, my mission is to facilitate your learning and provide you with the tools to complete the work. I will try to give you an underlying motivation for the topics we are studying that will make the course more interesting and enjoyable for you. I make myself available for help so you should not hesitate to come to my office when you are struggling (come by even if you're not!) You should feel free to approach me with questions and problems – no matter how “stupid” or “simple” they might seem to you.

Physics 237 Spring 2007 Class Schedule (Subject to change...)

Week	Date	Day	Chapter (Homework problems)
1	January 15 17 19	M	Chapter 1: Special Relativity (18,19,26,33,41,46,48,50,51)
		W	
		F	
2	22 24 26	M	Chapter 2: Relativistic Mechanics (3,8,18,20,23,24,31,40)
		W	
		F	
3	29 31 February 2	M	Chapter 4: Quantization of Light (4,9,14,16,18,21,24,28,29)
		W	
		F	
4	5 7 9	M	Chapter 6: Matter Waves (9,11,15,21,29,30,33,34,38,42,44,46,49)
		W	
		F	
5	12 14 16	M	Chapter 7: 1-D Schrödinger Equation (3,7,11,18,32,36,44,49)
		W	
		F	
6	19 21 23	M	Exam 1
		W	
		F	
7	26 28 March 2	M	Chapter 8: 3-D Schrödinger Equation (20,25,30,38,42,43,48,53)
		W	
		F	
8	5 7 9	M	
		W	
		F	
9	12 14 16	M	<i>Spring break</i>
		W	
		F	
10	19 21 23	M	Chapter 9: Electron Spin (1,2,4,12,15,16,19,20)
		W	
		F	
11	26 28 30	M	Ch 10.1-5: Multielectron atoms (3,5,7,11,18) Chapter 11.8,9: Lasers (24,25,28)
		W	
		F	
12	April 2 4 6	M	Chapter 12.2-4: Bonding (9,14,16,27,30)
		W	
		F	
13	9 11 13	M	Chapter 13.2-5: Solids (11,12,15,17,25,28,29,33,34) <i>Late drop deadline</i>
		W	
		F	
14	16 18 20	M	Exam 2 Chapter 15: Statistical Mechanics (1,5,8,14,15,23,34,38,39,47)
		W	
		F	
15	23 25 27	M	
		W	
		F	
16	30 May 2 4	M	
		W	
		F	
17	7 9 11	M	Final Exam (8:00 – 9:50am)
		W	
		F	