PHY 355 – Modern Physics and Introduction to Thermodynamics

General Information

Class Meetings: Tues, Thur. at 11:00 AM – 12:30 PM in ECJ 1.204

Unique #: 57670

Course Schedule: See attached *Syllabus* for schedule of lectures, reading assignments, tests, and homework assignments.

Instructor: Professor Roy Schwitters
Office: RLM 9.320, tel. 471-9962
email: schwitters@physics.utexas.edu
Office hours: Tuesdays 1:00 PM – 2:00 PM, Wednesdays 10:30 AM - noon.

Web info.: All materials will be posted on UT Blackboard

Assistant: Xi Zhang
Office:
email: jh-zhangxi@hotmail.com
Office hours: TBD

Text: Required Text: *Modern Physics from α to Z^0*, James William Rohlf, John Wiley & Sons, Inc. (1994).
Optional (available in paperback or library): *A Traveler's Guide to Spacetime*, Thomas A. Moore, McGraw Hill (1995). *Spacetime Physics*, Taylor & Wheeler, W.H. Freeman and Co. (1966).

Optional Discussion Sections:
TBD

Homework: A total of eleven homework assignments will be given during the term. Typically, homework problems will be given out at the Thursday lecture and they will be due the following Thursday at the beginning of lecture. Late homework will be accepted for one additional week. Late homework will receive a maximum of one-half credit; homework more than one week overdue will receive no credit.

Exams: Three quizzes will be given during the term. No makeup tests will be given. There will be a final examination, scheduled by the university. A makeup final examination will be given only in documented cases of illness or emergency. The quizzes and final examination will be closed-book; a single 8 1/2" x 11" page of *your* notes and calculators may be used.

Grading: Grades will be determined from points accumulated during the term. Points are given for performance on assigned homework, tests given during the term, participation in

class and the final examination. The goal is to accumulate 100 points. Four points (maximum) will be given for each satisfactory homework assignment. Each of the scheduled tests will have a maximum score of 16 points. Up to 8 points will be given for class participation—in lecture and discussion section—based on attendance, performance in "pop" quizzes, etc. The maximum point value of the final exam will be determined for each student as the difference between 100 and the total points acquired through homework, test scores and participation. Thus, for students who keep up with the homework (44 points possible), have a perfect score on both tests (48 points) and have a good record of class participation (8 points), the final examination will be worth 0 points and they don't have to show up for it. For the student who had to miss one test and lost 24 points on homework and the other things, the final exam will be worth 40 points. The student who blows off the entire semester (not recommended!) can still, in principle, reach 100 points by having a perfect score on the final exam alone. The number of points required for a given grade—grade cutoff values—will be determined after the final exam; *no prescribed cutoff values should be assumed*.

PHY 355
Unique # 57670

Syllabus

Modern Physics and Intro to Thermo

Spring Term 2012
Februray 17, 2012

Class		Date	Topic	Homework Assigned	Reading (Chapter)
1	T	17-Jan	Introduction		1
2	Th	19-Jan	Special Relativity	1	4
3	T	24-Jan	Spacetime		
4	Th	26-Jan	Transformations among frames	2	
5	T	31-Jan	Invariants		
6	Th	2-Feb	Kinematics, energy, momentum	3	
7	T	7-Feb	Applications		
8	Th	9-Feb	The world is made of atoms	4	2
9	T	14-Feb			
10	Th	16-Feb	**Quiz 1**		
11	T	21-Feb	Brownian motion		
12	Th	23-Feb	Thermal equilibrium	5	
13	T	28-Feb	Statistical tools		3
14	Th	1-Mar	Radiation	6	
15	T	6-Mar	Photons		
16	Th	8-Mar	Atomic structure	7	6
17	T	20-Mar			
18	Th	22-Mar	**Quiz 2**		
19	T	27-Mar	Early QM		5
20	Th	29-Mar		8	
21	T	3-Apr	Schrodinger Equation		7
22	Th	5-Apr		9	
23	T	10-Apr			
24	Th	12-Apr	Hydrogen Atom	10	8
25	T	17-Apr			
26	Th	19-Apr	**Quiz 3**		
27	T	24-Apr	Quantum statistics		12
28	Th	26-Apr	Particle decay	11	
30	T	1-May	The big picture today		18
31	Th	3-May	Review		
	M	14-May	**Final Examination**	9:00 AM - 12:00 noon	