PHYS404-Fall 2012 Tentative Schdule

Date	Schroeder §	Topic	Blundell^2 §	Gould&Tob. §
Aug. 30	1.1-1.2	Temperature (T), ideal gas	1	1, 2.4-2.5
Sept. 4	1.3-1.6	Equipartition,work, heat capacity C	2	1,2.6-2.11
Sept. 6	1.6,2.1-2.3	Latent heat, simple models, probability	28.1	3.1-3.5(not3.4.2)
Sept. 11	2.4-2.5	Large systems, probability (continuous)		3.6-3.8
Sept. 13	2.6	Entropy; reversible vs. irreversible	12,14	2.12-2.19(not2.14)
Sept. 18	3.1-3.2	More on entropy, rel'n to T, C, etc.		4
Sept. 20	3.3	Paramagnetism, Curie law	17.3	
Sept. 25	3.4	Pressure, mechanical equilibrium		
Sept. 27	3.5 (1.7), 4.1	Diffusive equilib. & chemical potential; Carnot cycle		
Oct. 2	4.2-4.3	Refrigerators; efficiency; real engines (Otto, Diesel); quiz	13	2.14
Oct. 4	5.1,1.6	Free energies as available work; thermo identities; enthalpy	16	
Oct. 9	5.2-5.3	Free energies as force toward equilib.		
Oct. 11	5.3-5.4	Phase transitions of pure substances; mixtures		
Oct. 16	5.5-5.6	Parts of dilute sol'ns, chem. pot., boiling & freezing; chem. equilib.		
Oct. 18		***Midterm***		
Oct. 23	6.1-6.2	**Boltzmann factor, partition function Z**	20	
Oct. 25	6.3-6.4	Paramagnetism, equipartition, Maxwell speed distrib.	19	
Oct. 30		No class: STORM		
Nov. 1	6.5-6.7	More on Z, quantum length, Z of gas	21	
Nov. 6	7.1;7.2	Grand canonical ensemble & Gibbs factor; Bosons & fermions	22.3-22.4;29,30.1	
Nov. 8	7.3	Degenerate Fermi gas; quiz	30.2	
Nov. 13	7.3	Fermi gas at "low" temperature		
Nov. 15	7.4	Planck distrib., blackbody radiation, photon gas	30.3	
Nov. 20	7.5	Debye model of solids, compare phonons & photons	24	
Nov. 22		***Thanksgiving***		
Nov. 27	7.6	Degenerate Bose gas	30.3	
Nov. 29	7.6	Bose-Einstein condensation; **quiz**	30.4	
Dec. 4	8.2	Ising model: simple interacting system		
Dec. 6	8.2	Mean field theory: physics version of Golden Rule		
Dec. 11		Slosh, review		
Dec. 18, 1:30		Final exam		