Thermal Physics
Syllabus*

Week	Topics	Reading	Notes
1 (12-16 Jan.)	Thermal Energy & the First Law	Secs. 1.1-1.6, 2.1	
2 (19-23 Jan.)	Multiplicity in Model Systems & the Second Law	Secs. 2.2-2.6	No Class Mon. Jan. 19
3 (26-30 Jan.)	Temperature, Entropy, and Interactions	Secs. 3.1-3.6	
4 (2-6 Feb.)	Heat Engines, Refrigerators & Free Energies	Secs. 4.1-4.4, 5.1	
5 (4-8 Feb.)	Classical Statistical Mechanics I: Boltzmann Factor and Partition Function	Secs. 5.2, 6.1-6.3	
6 (16-20 Feb.)	Classical Statistical Mechanics II: Application to the Ideal Gas	Secs. 6.4-6.7	
	Mid-Term Exam (covers material through Sec. 6.3) - Take-home: 2/20-2/23		
7 (23-27 Feb.)	Quantum Statistics I: Distribution Functions and Fermi Gas	Secs. 7.1-7.3	
8 (2-6 Mar.)	Quantum Statistics II: Blackbody Radiation and Bose Gas	Secs. 7.4-7.6	MPT out of town **(meet Sat. Feb 28?)**
(9-13 Mar.)	Spring Break		
9 (16-20 Mar.)	Interacting Systems I: Phase Diagrams & Introduction to Monte Carlo Methods	Sec. 5.3, Handout	
10 (23-27 Mar.)	Interacting Systems II: Ising Model - Mean Field, Monte Carlo, Exact Methods	Sec. 8.2 Handout	OSAPS Meeting: 3/27-3/28
11 (30 Mar.-3 Apr.)	Interacting Systems III: Nonideal Classical Gas & Transport Processes	Secs. 8.1, 1.7	
12 (6-10 Apr.)	Critical Phenomena: Exponents + Universality & Monte Carlo Project Presentations	Handout	
	Take-Home Final Exam: due Wednesday April 15, 6 PM		

*Note: This schedule is subject to change through the term, although the exam dates are firm.