PHYS4101 Thermal Physics (Fall 2021)

Class Schedule as of July 14, 2021

Reading and homework assignments from *An Introduction to Thermal Physics* (Oxford 2021) by Daniel V. Schroeder

Day	Date	Topics	Reading	HW Due
Tue	24 Aug	Temperature; The Ideal Gas	1.1, 1.2	—
Thu	26 Aug	Equipartition of Energy; Heat and Work	1.3, 1.4, 1.5	1.16, 1.21
Tue	31 Aug	Heat Capacity and Enthalpy	1.6	1.29, 1.31
Thu	2 Sep	Multiplicity; The Einstein Solid	2.1, 2.2	1.44, 1.53
Tue	7 Sep	Interacting Systems; Large and Very Large Numbers	2.3, 2.4	2.3, 2.5
Thu	9 Sep	A Large Einstein Solid; The Ideal Gas Revisited	2.4, 2.5	2.9, 2.17
Tue	14 Sep	Entropy and the Second Law of Thermodynamics	2.6	2.23, 2.26
Thu	16 Sep	Temperature Revisited	3.1	2.32, 2.37
Tue	21 Sep	Entropy and Heat	3.2	3.1, 3.5
Thu	23 Sep	Paramagnetism	3.3	3.8, 3.11
Tue	28 Sep	**Midterm Exam #1: Material Through and Including Section 3.2**	—	—
Thu	30 Sep	Pressure Revisited; Chemical Potential	3.4, 3.5, 3.6	3.19, 3.22
Tue	5 Oct	Engines and Refrigerators	4.1, 4.2	3.36, 3.39
Thu	7 Oct	Helmholtz Free Energy and Gibbs Free Energy	5.1, 5.2	4.1, 4.12
Tue	12 Oct	Phase Transitions	5.3	5.1, 5.23
Thu	14 Oct	Phase Transitions Continued; Clausius Clapeyron Equation	5.3	5.24, 5.26
Tue	19 Oct	The Boltzmann Factor and the Partition Function	6.1	5.32, 5.52
Thu	21 Oct	Average Values of Thermodynamic Quantities	6.2	6.3, 6.12
Tue	26 Oct	The Equipartition Theorem; The Maxwell Speed Distribution	6.3, 6.4	6.20, 6.27
Thu	28 Oct	More on the Partition Function	6.5, 6.6	6.31, 6.34
Tue	2 Nov	**Midterm Exam #2: Material Through and Including Section 6.4**	—	—
Thu	4 Nov	The Ideal Gas Re-Revisited	6.7	6.35, 6.44
Tue	9 Nov	The Gibbs Factor and the Grand Partition Function	7.1	6.45, 6.48
Thu	11 Nov	Bosons and Fermions	7.2	7.1, 7.7
Tue	16 Nov	The Degenerate Fermi Gas	7.3	7.16, 7.17
Thu	18 Nov	Blackbody Radiation	7.4	7.19, 7.22
		22-26 Nov Thanksgiving Break (No Classes)		
Tue	30 Nov	The Debye Theory of Solids	7.5	7.38, 7.46
Thu	2 Dec	Bose-Einstein Condensation	7.6	7.58, 7.60