

Physics 403 Schedule Fall 2023

(version 9)

Week	Lecture	Day	Date		Homework [due in in class]	Text Sections
1	1	R	Aug. 31	Introduction; Microscopic vs. Macroscopic		1
2	2	T	Sep. 5	Work, Heat, Pressure, Temperature, Energy		2.1 - 2.7
	3	R	Sep. 7	1st Law, Heat Capacity, Enthalpy		2.8 - 2.11
3	4	T	Sep. 12	Entropy, 2nd Law		2.12 - 2.13
	5	R	Sep. 14	Heat Engines, Carnot Cycle	Hwk 1 due	2.14 - 2.15
4	6	T	Sep. 19	Ideal gases; Thermodynamic ; 3rd Law		2.16 - 2.20
	7	R	Sep. 21	Free Energy, Availability of Energy	Hwk 2 due	2.21
5	8	T	Sep. 26	Maxwell Relations, Thermal Properties, Van der Waals gas		2.22
	9	R	Sep. 28	Probability & Statistics; mean values		3.1 - 3.3
6	10	T	Oct. 3	Information and Uncertainty	Hwk 3 due	3.4
		R	Oct. 5	Test 1 (Chapters 1 & 2) - Thermodynamics		
7	11	T	Oct. 10	Binomial Distribution		3.5 - 3.6
		R	Oct. 12	<i>Fall Break - no class</i>		
8	12	T	Oct. 17	Central Limit Theorem; Stat. Mech. - fundamental postulate		3.7. 4.1
	13	R	Oct. 19	Counting microstates - simple thermal interaction	Hwk 4 due	4.2
9	14	T	Oct. 24	Counting microstates		4.3
	15	R	Oct. 26	Microcanonical ensemble		4.4 - 4.6
10	16	T	Oct. 31	Applications of Canonical Ensemble	Hwk 5 due	4.7
	17	R	Nov. 2	Canonical Ensemble: more applications		4.8
11		T	Nov. 7	<i>Election day - no class</i>		
	18	R	Nov. 9	Semiclassical Ideal gas, Entropy of Mixing, classical Stat. Mech.	Hwk 6 due	6.1
12	19	T	Nov. 14	Equipartition, Grand canonical ensemble		4.12, 6.2
		R	Nov. 16	Test 2 (Chapters 3 & 4 (up to 4.8))		
13	20	T	Nov. 21	Bose/Fermi statistics; Blackbody radiation (<i>remote instruction</i>)		6.3 - 6.7
		R	Nov. 23	<i>Thanksgiving - no class</i>		
14	21	T	Nov. 28	Ideal Fermi Gas; Einstein model of Heat Capacity		6.8, 6.9
	22	R	Nov. 30	Ideal Bose Gas; Bose-Einstein Condensation	Hwk 7 due	6.10
15	23	T	Dec. 5	Chemical Potential; Phase Equilibria		7.1
	24	R	Dec. 7	Clausius-Clapeyron equation; phase transitions		7.3
			Dec. 14		Hwk 8 due	
		T	Dec. 19	Final Exam 2:00 pm - 5:00 pm		