

PHYS-9130 Schedule (Winter 2022)

#	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Topics
1	01/17 01/21		Jan. 18 First day of class	<i>Days with lectures in green</i>	Jan. 20 A1→			♦ Introduction & Motivation ♦ Review: Thermodynamics
2	01/24- 01/28		Jan. 25		Jan. 27 →A1 A2→			♦ Review: Classical Mechanics ♦ Liouville's Theorem ♦ BBGKY Hierarchy
3	01/31- 02/04		Feb. 1		Feb. 3			♦ Boltzmann Eqn, H-theorem ♦ Equilibrium distribution ♦ Conservation laws & Hydrodyn.
4	02/07- 02/11		Feb. 8		Feb. 10 →A2 A3→			♦ Postulates of Stat. Mech. ♦ Classical Stat. Mech. ♦ Canonical Ensembles
5	02/14- 02/18		Feb. 15		Feb. 17			♦ Non-interacting particles ♦ Interacting particles ♦ Cumulant, Cluster Expansions
	02/21- 02/25		Feb. 22	Reading Week	Feb. 24			
6	02/28- 03/04		Mar. 1		Mar. 3 →A3			♦ Van der Waals Equation ♦ Mean-field theory, Gibbs ineq. ♦ Phase transitions
7	03/07- 03/11		Mar. 8 Mid-term Exam		Mar. 10 A4→			♦ Review: Density Matrix QM ♦ Quantum Stat. Mech. ♦ Eigenstate thermalization
8	03/14- 03/18		Mar. 15		Mar. 17 →A4 A5→			♦ Linear response ♦ Fluctuation-Dissipation Thm ♦ Polyatomic gases
9	03/21- 03/25		Mar. 22		Mar. 24			♦ Vibrations and Normal modes ♦ Phonons ♦ Identical Particles
10	03/28- 04/01		Mar. 29		Mar. 31 →A5 A6→			♦ Number representation ♦ Slater determinants ♦ Ideal Fermi gas
11	04/04- 04/08		Apr. 5		Apr. 7 →A6			♦ Many-boson states ♦ Ideal Bose Gas ♦ Bose Condensation
12	04/11- 04/15	<i>Assessment Cutoff</i>	Apr. 12		Apr. 14	Apr. 15 Good Friday		♦ Selected topics based on interests of class (TBD)
13	04/18- 04/22	Apr. 18	<i>A = Assignment</i> <i>Notation: → Hand in, Hand out →</i>					