

Tentative Lecture Schedule – PHYS 2060 @ 25/7/06

Week	Lecture	Lecture Contents	Resources/Suggested Reading
1	1	Introduction to the course – Basics of Thermal Physics	N/A
	2	Pressure of a gas – Compressibility of radiation (example)	DVS 10-13, SS 258-266, F39-2,3, ZD 124-128
2	3	Zeroth law and Temperature – Temperature and kinetic energy	DVS 1-4, SS 258-266, 5-18, F 39-4, ZD 6-23
	4	Boyle's Law, Charles Law, Ideal gas law, Van der Waals' correction	DVS 6,7,180-181, SS 24-30,276-278, F39-5, ZD 33,34
3	5	Specific Heat of Gases – Failure of Classical Physics	SS 264-270, F40-5,6, ZD 110-112
	6	Atmosphere Isothermal and Adiabatic – Boltzmann's Law	DVS 220-224, F40-1,2,
4	7	Distribution of Molecular Speeds – <i>Tutorial/Q&A 1</i>	DVS 242-246, SS 354-366, F40-4, ZD 292-296
	8	Brownian Motion – Random Walks	F41-1,4, ZD122-124
5	9	Collisions between molecules – Mean free path	DVS 41-44, SS 279-286, F43-1,2
	10	Drift Speed – Molecular Diffusion	DVS 46-48, SS 294-296, F43-3,5
6	11	<i>Tutorial/Q&A 2</i>	N/A
	12	Work and Heat – Heat Transfer (Assignment 1 due)	DVS 17-26, SS 62-72, 74-85, ZD Ch3,68-74, 86-95
7	13	1 st Law – Equilibrium and Reversibility	DVS 17-19,82-83, SS 72-74, 86, ZD 74-78
	14	Heat engines/cycles and efficiency W/Q – Otto cycle calculation	DVS 122-124,131-133, SS 113-115, F44-1, ZD 135-146
8	15	<i>Tutorial/Q&A 3</i>	N/A
	16	MIDSESSION EXAM	N/A
9	17	2 nd Law – Reversible Engines/Carnot Cycle	DVS 49-59,74-77, SS 111-115,122-124, F44-2,3, ZD 186-197
	18	The Efficiency of an ideal engine – Thermodynamic Temperature	DVS 85-97, SS 111-115,124-127, F44-4,5, ZD 174-177
10	19	Entropy – Third law of Thermodynamics	SS 127-141, F44-6, ZD 514-520 (and pages preceding)
	20	<i>Tutorial/Q&A 4</i>	N/A
11	21	The Mathematics Lecture	F45-1,2
	22	$C_v - C_p = \gamma$ – Thermodynamic potentials/Maxwell Rels.	SS 98-109,178-186, ZD 212-229
12	23	Solids, Liquids & Gases/Transitions – Clausius-Clapeyron Equation	DVS 166-174, SS 190-196, F45-3, ZD 245-248
	24	<i>Tutorial/Q&A 5</i>	N/A
13	25	How a ratchet works – Ratchet as an engine	F46-1,2
	26	Reversibility in mechanics – Irreversibility (Assignment 2 due)	F46-3,4
14	27	Order and Entropy – Maxwell's Demon	DVS 76-77, F46-5, ZD 297-299
	28	Boltzmann's Entropy – Arrow of Time	DVS 74-76, ZD 202-206
Stuvac	Stuvac	<i>Tutorial/Q&A</i> – The mega-revision session.	

DVS = D.V. Schroeder, SS = Sears and Sallinger, F = Feynman Lectures, ZD = Zemansky and Dittmann (n.b., this list is not exhaustive)