

Tentative Course Schedule for ChE 22900 S2023

Text: "Introductory Chemical Engineering Thermodynamics", J. R. Elliott & C. T. Lira, Prentice Hall PTR, 2012 (second edition or higher).

Th 01/26	Introduction/Basic Concepts	Chapters 1.1-1.2
Tu 01/31	Basic Concepts	Chapters 1.2-1.4
	Recitation 1	Problems from Chapter 1
Th 02/02	1 st Law (work, heat, TD processes)	Chapters 1.5, 2.1-2.6
Tu 02/07	1 st Law (closed/steady state open systems EB)	Chapters 2.6-2.9
	Recitation 2	Problems from Chapter 2
Th 02/09	1 st Law (heat capacity, internal, kinetic & potential energy, reference state, process equipment)	Chapters 2.10-2.13
Tu 02/14	1 st Law (Problem solving strategy, Summary)	Chapter 2.14, 2.17
	Recitation 3	Probs. Chap. 2/Exam Q&A
Th 02/16	Exam 1 (<i>no recitation</i>)	
Tu 02/21	Monday Schedule – no lecture	
Th 02/23	Carnot Cycle (heat engine/heat pump), Distillation, Mixtures	Chapters 3.1-3.5
Tu 02/28	Reactive & Biological Systems	Chapters 3.6-3.8
	Recitation 4	Problems from Chapter 3
Th 03/02	Concept of Entropy/Microscopic View	Chapter 4.1-4.2
Tu 03/07	Concept of Entropy/Marcoscopic View	Chapter 4.3-4.5
	Second Law (entropy balance)	
	Recitation 5	Problems from Chapter 4
Th 03/09	Second Law (Process Equipment)	Chapters 4.6-4.10
Tu 03/14	Entropy Balance, Optimum Work, Irreversibility	Chapters 4.11-4.13, 4.15
	Recitation 6	Probs. Chap. 4/Exam Q&A
Th 03/16	Exam 2	
Tu 03/21	Powercycles & Design (Rankine Cycle)	Chapters 5.1-5.2
	Recitation 7	Problems from Chapter 4
Th 03/23	Powercycles & Design (Modified Rankine)	Chapters 5.2-5.3
Tu 03/28	Refrigeration	Chapter 5.4
	Recitation 8	Problems from Chapter 5
Th 03/30	Liquefaction	Chapter 5.5
Tu 04/04	Cycles – Problem Solving Strategies	Chapter 5.8-5.9
	No recitation	
04/05 – 04/13	no lectures/recitations (Spring Recess)	
Tu 04/18	Misc. Process Thermodynamics	
	Recitation 9	Probs. Chap. 5/Exam Q&A
Th 04/20	Exam 3	
Tu 04/25	Generalization for Any Fluid	Chapter 6.1
	Recitation 10	Problems from Chapter 6
Th 04/27	Derivative Relations	Chapters 6.2/6.4
Tu 05/02	Introduction to Equation of States (EOS)	Chapters 7.1-7.4
	Recitation 11	Problems from Chapter 6
Th 05/04	Cubic Equation of States	Chapters 7.5-7.6
Tu 05/09	Cubic Equation of States	Chapters 7.7-7.8
	Recitation 12	Problems from Chapter 7
Th 05/11	Molecular Basis of EOS	Chapters 7.9-7.12
Tu 05/16	Review for Final Exam	
	Recitation 13	Probs. Chap. 7/Exam Q&A
05/17 - 05/23	Final Exam	