

CH 331
LECTURE AND EXAM SCHEDULE
Prof. Stefan Franzen
Fall 2005

Date	Lecture	Reading
August 17	1. Introduction. Overview. Blackbody Radiation.	Chapter 1
August 19	2. Wave Equation. Photoionization.	Chapter 9
August 22	3. Energy Levels and Atomic Absorption.	Chapter 9
August 24	4. Electromagnetic Radiation and Spectroscopy.	Chapter 10
August 26	5. Absorption in the Atmosphere: MO diagrams.	Chapter 10
August 29	6. The Particle in a Box.	Chapter 10
August 31	7. Rotational and Vibrational Spectroscopy.	Chapter 10
September 2	8. Fluorescence Spectroscopy and Applications.	Chapter 10
September 5	Labor Day. No Classes.	
September 7	9. Perfect gas law/Kinetic theory of gases.	Chapter 2 & 6
September 9	11. Real gases.	Chapter 2
September 12	12. Thermodynamics: The First Law.	Chapter 2
September 14	13. System and surrounding. Work and heat.	Chapter 2
September 16	14. Internal Energy. Heat capacity. First law.	Chapter 2
September 19	15. Enthalpy. Temperature variation of enthalpy.	Chapter 2
September 21	First Mid-term exam	
September 23	16. Thermodynamics: entropy The second law.	Chapter 3
September 26	17. The third law. Reaction entropy.	Chapter 3
September 28	18. Gibbs energy G . Properties of Gibbs energy.	Chapter 4
September 30	19. Free energy. Equilibrium conditions. Temperature and pressure effects.	Chapter 4
October 3	20. Chemical Potential. Applications.	Chapter 4
October 5	21. Mixtures. Raoult's law. Henry's law.	Chapter 4

Fall Break

October 10	22. Nernst Equation.	Chapter 4
October 12	23. Activity coefficients. Ionic solutions.	Chapter 5
October 14	24. Colligative properties, Osmosis.	Chapter 5
October 17	25. Phase transitions and equilibria. Phase diagrams. The phase rule.	Chapter 5
October 19	26. Surface tension, vapor pressure, membranes.	Chapter 5
October 21	Second Midterm Exam	
October 24	27. Bioenergetics/Photosynthesis.	Chapter 5
October 26	28. Cooperative behavior.	Chapter 5
October 28	30. Diffusion. Sedimentation.	Chapter 6
October 31	31. Viscosity. Electrophoresis.	Chapter 6
November 2	32. Rates of chemical reactions – kinetics. Rate constant	Chapter 7
November 4	33. First and second order kinetics	Chapter 7
November 7	34. Half life. Arrhenius equation	Chapter 7
November 9	35. Activated complex theory	Chapter 7
November 11	36. Catalysis	Chapter 7
November 14	37. Reaction kinetics - examples of mechanisms.	Chapter 7
November 16	38. Steady-state approximation. Rate determining step	Chapter 7
November 18	39. Enzyme kinetics. Michaelis-Menton Theory.	Chapter 7
November 21	40. Competitive and non-competitive inhibition.	Chapter 7
November 23	Thanksgiving, No classes.	
November 25	Thanksgiving, No classes.	
November 28	41. Structural Methods	Chapter 10
November 30	42. Applications	
December 2	43. Review	