

# Chem 322 Assignment Schedule

Prof. Adam Van Wynsberghe

Spring 2014

Week	Date	Lecture Topic	Reading	Laboratory	Assignments
1	1/22 W	Course Introduction		No Lab	
	1/24 F	Summary of Quantum Mechanics	Math Chapter B		
2	1/27 M	Probability and Statistics	Math Chapter H; Math Chapter J	Check-in and Math Review	
	1/29 W	Boltzmann Distribution	17.1-2		
	1/31 F	Partition Functions and Beta	17.3-5		<b>HW #1</b>
3	2/3 M	Thermodynamic Properties; Molecular Partition Functions	17.6-8		
	2/5 W	Translational Partition Functions	18.1-3; Math Chapter I		
	2/7 F	Vibrational and Rotational Partition Functions	18.4-6		<b>HW #2</b>
4	2/10 M	Polyatomic Q & $C_v$ ; Equipartition Theorem	18.7-9		
	2/12 W	Ideal gases, Non-ideal gases	16.1-3		
	2/14 F	Law of Corresponding States; Virial Expansion	16.4-5, 16.7		<b>HW #3</b>

5	2/17 M	Second Virial Coefficient and Intermolecular Interactions	16.6	
<b>*** Exam I: Tuesday, February 18th, 6:00 PM TSC G041 ***</b>				
	2/19 W	Work and Heat	19.1-2	
	2/21 F	The 1st Law	19.3, 19.6	
6	2/24 M	Adiabatic and Isothermal Processes	19.4, 19.7	
	2/26 W	Enthalpy; Heat Capacity & Hess's Law	19.8-11	
	2/28 F	Thermodynamic Cycles; Entropy	19.12; 20.1-3	<b>HW #4</b>
7	3/3 M	Spontaneity and the 2nd Law of Thermodynamics	20.4-5	
	3/5 W	Clausius Inequality	20.6	
	3/7 F	Equivalence of 2nd Law definitions; Carnot Cycle	20.7-9	<b>HW #5</b>
8	3/10 M	3rd Law of Thermodynamics	21.1-9	
	3/12 W	Helmholtz and Gibbs Free Energies	22.1-3	
<b>*** Exam II: Thursday, March 13th, 6:00 PM Room TSC G041 ***</b>				
	3/14 F	State Function Relations I	22.4	
<b>Spring Break!</b>				

9	3/31 M	State Function Relations II	22.6-7	
	4/2 W	Natural Variables; Phase Diagrams	22.5; 23.1-3	
	4/4 F	Chemical Potential; Chemical Equilibrium I	23.3-5	<b>HW #6</b>
10	4/7 M	Chemical Equilibrium II	26.1-4	
	4/9 W	$\Delta G$ and $\Delta G^\circ$	26.5-7	
	4/11 F	Equilibrium and Partition Functions; Fugacity	22.8; 26.8-10	<b>HW #7</b>
11	4/14 M	Ideal and Real Solutions	24.7-8; 26.11	
	4/16 W	1-Dimensional Velocity Distribution	27.1-2	
	4/18 F	Maxwell Boltzmann Distribution	27.3; 27.5	<b>HW #8</b>
12	4/21 M	Molecular Collisions and Transport Phenomena	27.4; 27.6	

**\*\*\* Exam III: Tuesday, April 22nd, 6:00 PM Room TSCG041 \*\*\***

	4/23 W	Rate Laws	28.1	
	4/25 F	Experiments to Determine Rate Laws	28.2	
13	4/28 M	Simple Integrated Rate Laws	28.3-4	
	4/30 W	Equilibrium and Integrated Rate Laws	28.5-6	
	5/2 F	Transition State Theory	28.7-8	<b>HW #9</b>
14	5/5 M	Elementary Steps & Detailed Balance	29.1-3	Project Presentations
	5/7 W	Reaction Mechanisms I	29.4-5	
	5/9 F	Reaction Mechanisms II	29.6-7	<b>HW #10</b>
15	5/12 M	Catalysis	29.8-9	

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**\*\*\* Final Exam: Friday, May 16th, 7:00 PM room TSC 2048 \*\*\***

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