CHEMISTRY 160 SYLLABUS
Spring 2003

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Required Text and Materials:
1) Text: "CHEMISTRY The Molecular Science, 1st Edition" by Moore/Stanitski/Jurs
2) OWL web-based learning access

Recommended: Student Solutions Manual
Detailed, step-by-step solutions to book-answered book problems are provided.

Test Schedule

Test #1:	Ch. 11 Liquids, and Solids, and Materials
Monday, Feb 17	Ch. 15 The Chemistry of Solutes and Solutions
	Ch. 13 Chemical Kinetics: Rates of Reactions
Test #2:	Ch. 14 Chemical Equilibrium
Wednesday, Mar 12	Ch. 16 Acids and Bases
Test #3:	Ch. 17 Additional Aqueous Equilibria
Wednesday, April 9	Ch. 18 Thermodynamics: Directionality of Chemical Reactions
Test #4:	Ch. 19 Electrochemistry and Its Applications
Monday, May 5	Ch. 20 Nuclear Chemistry
Final Exam	Comprehensive (Standardized American Chemical Society Exam,
Monday, May 12, 12:00 noon	Covers Entire Year of Chemistry!!)

Grading Summary:

Tests	400 points (4 x 100)
Final exam	150 points (1 x 150)
OWL Homework	100 points
(+10 points extra credit possible for perfect attendance)	

Tentative letter grades

A	≥90%
B	≥78%
C	≥66%
D	≥54%

The instructor may lower but will not raise the numbers required for a letter grade.

Attendance: Perfect attendance will be rewarded with 10 points of extra credit and a single absence with 5 points of extra credit. Be sure to sign the attendance sheet each day!

Final Exam: The final exam will be cumulative, covering the entire year of general chemistry. The test is a standardized test produced by the American Chemical Society, taken by thousands of students at schools throughout the country. It is useful for comparison to other students at other schools. It is hard, but is graded on a curve. I will use a complex grading adjustment so that scoring is comparable to a regular test. There will also be a chance if you do really great on the final to improve your overall grade.

Website/Library Reserve/Copies Plus Materials: See website: http://www.mnstate.edu/jasperse/ for notes, handouts, and old tests. Notes and tests are also available in the library reserve or Copies Plus. (Library reserve: CHE-218 notes CHE-217 tests, CHE-265 student solutions manual, answers to bold, CHE-261, instructor's solutions manual, answers to non-bold questions).

Practice Tests/Review Sessions: I will normally hold one or two practice test review sessions prior to each test.

HOMEWORK

DOING HOMEWORK PROBLEMS REGULARLY AND FAITHFULLY IS THE BEST WAY TO ENSURE A HAPPY AND SUCCESSFUL OUTCOME IN THIS CLASS!

Note: Doing the OWL homework is necessary but not sufficient to succeed in the class. It's only a start; you'll probably need more practice problems to get a good grade.

OWL: OWL (owl.harcourtcollege.com/) assignments will be made regularly, normally no later than the end of each lecture day. I will normally make them due by midnight 3 days later, according to the following schedule:

Lecture Material	Latest Posted Time for Related OWL Assignments	Due Time for OWL Assignment
Monday	Monday midnight	Thursday midnight
Wednesday	Wednesday midnight	Sunday midnight
Friday	Friday midnight	Tuesday midnight

Study Strategy (and OWL strategy): Diving right into homework problems isn't very useful if you don't know how to solve them! Learn the material first!

1. Read through your class notes a couple of time before attacking the OWL assignments.
2. Do any "Problem-Solving Examples" and "Problem-Solving Practice Problems" in the appropriate sections of the book. (Answers are in back of book).
3. Third, do your OWL problems.
4. Do the recommended in-chapter Exercises. (Answers are in back of book).
5. Do back-of-chapter review problems. I'm listing a ton, ones that I consider fair game and testable type problems. Try to at least do most of the problems with bold numbers. (Answers are in back of book. Additional explanations about solutions are in the Solutions Manual, which you would do well to buy, but which will also be in the library reserve.)
6. Read the text. It really helps; you will learn a ton; things on which I was unclear or too fast in class you can process at your own speed. You may wish to move this up to a much higher number!

Book Problems:

Ch.	Problem-Solving Examples and Practice Problems	Exercises	Review Question At the Back of The Chapter
9	6 (omit a), 7,8 (omit b)	5-7	47,48, 49(skip c), 50(skip b), 51, 52, 55, 57, 58, 61a-c, 89-92
11	1-4,7	1-8, 11, 12, 16	1-3, 5-7, 11-16, 18-26, 29-37, 38(lowest only), 41, 43(skip d), 44-48, 66, 77, 78, 81, 82, 84, 86, 87, 90
15	1,2	1,2,4	1-3, 6, 13, 14, 23, 24, 25(literally per 1L of water), 26, 28, 29, 49, 50, 78, 83, 84, 91-94, 100
13	1-4, 6,7,10	1a,c, 4, 5(2nd part) 7, 9, 10, 12	2-6,7a,b, 10, 13, 15b,c,16b,c,17-20, 21(skip a,b), 22(skip a,b), 23-30, 32-35, 36-39, 42, 46-48, 51-53, 55, 56, 76-85, 87a, 90-92, 94, 106, 107, 108c, 113-117
14	1, 3-6, 8,9 (7 is good, but some quadratic involved)	3,6,8,10,11	2, 4-6, 8,9,11,12(K=2), 13-19, 29-32, 34-37, 38a, 39a, 40-45, 47a,b, 48, 53, 54, 56-64, 66-71, 75, 76, 81, 90, 93
16	1-10	1, 3-8, 10-15, 20	2, 4, 7-9, 11-28, 31-56, 57(see Table p 745), 59-62, 63b,c, 64, 65b,c, 76, 78, 80, 83-86, 89-91, 95, 100
17	1-11	1-5, 7-11	2-4, 8-10, 15-28, 30, 32, 33a-d, 34, 35, 38, 39, 42-46, 51-62, 76-84, 86-88, 90, 92
18	2,3,5-7	1,4,7-10	6, 16,17,21-28, 31-34, 39-44, 46, 49-54, 56-59, 61, 65-67, 69, 70, 74, 75, 122, 127
19	1,2,5-10, 12	1,5,11,13, 15	1,5-7, 10a-d, 12, 13, 14a,b,e,f 15a,b,e,f 16, 18-21, 24-32, 34-45, 54, 56, 57, 58-61, 78, 80
20	1-5	1-4, 7, 8, 11, 14, 16, 18	1-3, 5, 6, 8, 11-18, 21-33, 47-53
10	3- 10, 12	3,4, 7, 8, 11, 12, 14,	2, 3, 8, 10a-c, 11a,b, 21-24, 27-42, 44-48, 54-56, 58, 59

	Chemistry 160, Jasperse, Spring 2003	Reading
Date	Topic	Assignment
15-Jan	Intro. Liquids, Solids, and Noncovalent Forces.	11.1-3, 9.5
17-Jan	Noncovalent Forces.	9.5
20-Jan	No Class. Martin Luther King Day.	-
22-Jan	Vapor Pressure, Phase Changes, Phase Diagrams, Solids	11.2-6
24-Jan	Bonding in Solids	11.5-6,10
	Omit: 15.5,6,9,1(	
27-Jan	Solubility and What Impacts Solubility	15.1-2
29-Jan	Factors Affecting Solubility; Impact of Dissolved Solutes on Solution Properties	15.2-4, 7, 8
31-Jan	Catchup	-
3-Feb	Reaction Rates; Dependence on Concentrations	13.1-2
5-Feb	Reaction Rates, Rate Laws	13.2-3
7-Feb	Elementary Reactions; Temperature Effects; Rate Laws; Reaction Mechanisms	13.3-7
10-Feb	Catalysts; Catchup	13.8-10
12-Feb	Equilibrium, Equilibrium Constants	14.1-2
14-Feb	Equilibrium Constants: Determining Them, the Meaning Of Them, and Using Them	14.3-5
17-Feb	Test 1, Chapters 11, 15, and 13	Test 1
19-Feb	Shifting Equilibria: When an Equilibrium is Disturbed. LeChatelier's Principle	14.6-8
21-Feb	Acids/Bases; Dissociation of Water	16.1-3
24-Feb	pH Scale; Ka and Kb Constants	16.4-5
26-Feb	Ka and Kb Constants; Problem Solving Using Ka and Kb	16.5-6
28-Feb	Ka and Kb Constants; Problem Solving Using Ka and Kb	16.5-6
3-Mar	Molecular Structure and Acid Strength	16.7
5-Mar	Acid-Base Behavior of Salts; Lewis Acids and Bases	16.8-10
7-Mar	Catchup	-
10-Mar	Buffer Solutions	17.1
12-Mar	Test 2, Chapters 14 and 16	Test 2
14-Mar	Acid-Base Titrations; Acid Rain	17.2-3
17-Mar	Spring Break	-
19-Mar	Spring Break	-
21-Mar	Spring Break	-
24-Mar	Solubility	17.4
26-Mar	Factors That Affect Solubility	17.5-6
28-Mar	Reaction Direction; Probability; Entropy	18.1-3
31-Mar	Entropy, Entropy Changes, and 2nd Law of Thermodynamics	18.3-5
2-Apr	Free Energy and the Equilibirum Constant, Miscellaneous	18.6-11
4-Apr	catchup	catchup
7-Apr	Oxidation Numbers, Oxidation-Reduction Reactions	5.4, 19.1
9-Apr	Test 3, Chapters 17 and 18	Test 3
11-Apr	Balancing Redox Reactions, Electrochemical Cells	19.2-3
14-Apr	Cell Voltage, Using Standard Cell Potentials	19.4-5
16-Apr	Voltage/Free Energy/Concentration Relationship, Neuron Cells, Common Batteries	19.6-10
18-Apr	No class. Good Friday/Easter.	no class
21-Apr	Electrolysis, Counting Electrons, Corrosion	19.11-13
23-Apr	Radioactivity, Nuclear Reactions, Patterns of Nuclear Stability	20.1-3
25-Apr	Nuclear Transmutations, Rates of Radioactive Decay	20.3-5
28-Apr	Fission, Fusion, Radiation, Applications	20.6-9
30-Apr	catchup	catchup
2-May	Gas Chemistry	10.5
5-May	Test 4, Chapters 19 and 20	Test 4
7-May	ACS Final Preview, ACS Practice Test for Final	Practice
12-May	Final Exam, Monday, 12 o'clock (Standardized Exam)	Final Exam