**GENERAL CHEMISTRY**

**CHEM 1010-1**

**AUTUMN, 2011**

Instructor: Dr. Scott D. Pegan

Rm: SGM 251

Phone: 303-871-2533

Email: spegan@du.edu

Text: Chemistry, 3th Edition, Gilbert

Lectures: 9-9:50 am, MWF, Olin 105

Discussion: 9-9:50 am, T, Olin 105

Office Hours: 10:30-11:30, T SGM 251

Exams: There are 3 X 1 h midterm exams during the quarter, plus a 2 h cumulative final exam. Each exam is worth 100 points. Exam questions will be similar to the problems assigned as homework and problems worked in class.

If you miss a 1 h midterm exam, then your final exam will be counted twice

and replace the missed midterm exam. With one exception, **THERE WILL BE**

**NO MAKEUP EXAMS**. The only exceptions to the no-makeup policy will be for members of a university team or group, e.g. athletic team or music group scheduled to be away from campus at the time of the exam, and members of the U.S. Armed Forces with conflicting obligations. You must inform your instructor of this prior to the exam and make arrangements at that time for a makeup exam.

If you take all 3 midterm exams and your grade on the final exam is better than one of your midterm exam grades, then your final exam will be counted twice and replace your lowest midterm exam grade.

There are 10 quizzes that will be administered during discussion periods. Your top 8 scores will count towards your grade, i.e. your 2 lowest quiz grades will be dropped. Homework problems will be assigned during lecture and will be collected. Points will be given for completing the assignment on time without grading the homework problems.

Grading: Midterm Exams 300 points

Final Exam 100 points

Quizzes 80 points (10 pts per Quiz)

Homework 40 points (4 pts per set; See Homework Sheet)

Clicker 80 points (This is a Clicker Enabled Course)

http://portfolio.du.edu/click

The assignment of a letter grade to a given numerical grade will depend on the overall class performance. However, if everybody does well, grades will not be curved down. **Also, note that points will be deducted from your final grade for disruptive behavior**.

**DATE TOPIC\* READING**

**WEEK 1**

Sep 12 Intro. into class Ch1-3

13 Discussion, Quiz, Homework Ch 1-3

14 Waves of Light Ch7.1-7.3

16 Electrons as Waves Ch7.4-7.5

**WEEK 2**

Sep 19 Quantum, Size & Shapes of Orbitals Ch7.6-7.7

20 Discussion, Quiz, Homework Ch 7.1-7.6

21 Electron Configurations of Ions Ch7.8-7.9

23 Chemical reactivity Ch7.10-7.12

**WEEK 3**

Sep 26 Chemical Bonds & Lewis Structures Ch8.1-8.3

27 Discussion, Quiz, Homework Ch 7.7-8.2

28 Resonance Structures, Formal Charge Ch8.4-8.7

30 **EXAM 1 Ch 1-3, 7, 8.1-8.3\*\***

**WEEK 4**

Oct 3, Bond lengths, VSEPR Ch8.8,9.1-9.2

4 Discussion, Quiz, Homework Ch 8.3-9.1

5 VSEPR & Polar Bonds Ch9.2-9.3

7 Valence Bond Theory and Chirality Ch9.4-9.6

**WEEK 5**

Oct 10 Molecular orbital theory Ch9.7

11 Discussion, Quiz, Homework Ch 9.2-9.6

12 Interactions of Molecules & Dispersion Forces Ch10.1-10.3

14 Solubility, Phase Diagrams, & Water Ch10.4-10.6

**WEEK 6**

Oct 17 Solutions, Electrolytes and Acid-Base Rxn Ch4.1-4.5

18 Discussion, Quiz, Homework Ch 9.7,10.1-10.6,4.1-4.3

19 **EXAM 2** **Ch 8.4-8.8, 9, 10\*\***

21 Acid-Base Rxn, Titrations, Precipitants Ch4.5-4.7

**WEEK 7**

Oct 24 Oxidation Numbers & Redox Reactions Ch4.8-4.9

25 Discussion, Quiz, Homework Ch 4.4-4.8

26 Bronsted-Lowry, pH, Ka & Kb Ch17.1-17.3

28 Polyprotic Acids, Strengths of Acids & Basis, Ch17.3-17.7

pH of Salt Solutions, & Common-Ion Effect

**WEEK 8**

Oct 31 Buffers, Solubility Equilibrium, & Indicators Ch17.8-17.10

Nov 1 Discussion, Quiz, Homework Ch 4.9, 17.1-17.9

2 Electrochemical Cells Ch19.1-19.5

4 Forms of energy Ch5.1-5.3

**WEEK 9**

Nov 7 Heat Capacity Ch5.4-5.6

8 Discussion, Quiz, Homework Ch 17.10, 19.1-19.5, 5.1-5.5

9 Hess's Law, Entropy Ch5.7-5.8,14.1

11 **EXAM 3** **Ch 4, 17, 19.1-19.5, 5\*\***

**WEEK 10**

Nov 14 Third Law of Thermodynamics Ch14.2-14.4

15 Discussion, Quiz, Homework Ch 5.6-5.8, 14.1-14.3

16 Free Energy Ch14.5-14.6

18 Overflow

**WEEK 11**

Nov 19 **FINAL EXAM** (comprehensive), 8-9:50 am, Olin 105

\*Daily Topics may change depending the progress of the class.

\*\*Exam will likely focus on these topics; however, the exact chapters covered will depend on the progress of the class.