GENERAL CHEMISTRY
CHEM 1010-1
AUTUMN, 2012

Instructor: Dr. Scott D. Pegan
Rm: SGM 251
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Text: Chemistry, 3th Edition, Gilbert
Lectures: 9-9:50 am, MWF, Olin 105
Office Hours: 10:30-11:30, F SGM 251

Welcome to General Chemistry! In this course, you will be introduced to fundamentals of chemistry that are necessary for you to do well in other courses in chemistry, biochemistry, biology, and engineering. Topics to be explored in this course include the structure of atoms and the periodic table, molecular structure, balancing chemical reactions, stoichiometry, and heats of chemical reactions.

This is a hybrid course, which means that there are both online and face-to-face course components that have been carefully designed to help you master the content in an efficient way. The online modules were developed and are scheduled to prepare you for the face-to-face classroom activities and discussions, and you will be responsible for completing the online components before class. Participation in both components is required to do well in this course. The amount of time that you will need to spend working through the modules will depend on you and your familiarity with the various topics covered. The goal is for everyone to master the content so that you will all be successful in the course.

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 me 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.

Online Activities: This is an enhanced course that includes the use of the in class TurningPoint clicker system and on-line modules. The 7 on-line modules will be administered on blackboard throughout the course. The best six module scores will count toward your final grade. On-line homework problems are assigned on a weekly basis. On-line homework and modules are due by 10 pm on the date indicated on the below topic list unless altered by myself.

Grading:

Midterm Exams	300 points	
Final Exam	100 points	
Module	90 points	(10 pts per Module Quiz + 5 pts for feedback)
Homework	50 points	(5 pts per set; See Homework Sheet)
Clicker	50 points	(This is a Clicker Enabled Course)
Assessment	10 points	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**.

Projected Grade Ranges (unless revised lower by the instructor during the course)**:**

A ≥ 94%	B- ≥ 80%	D+ ≥ 67%
A- ≥ 90%	C+ ≥ 77%	D ≥ 64%
B+ ≥ 87%	C ≥ 74%	D- ≥ 60%
B ≥ 84%	C- ≥ 70%	F < 60%

Disability Services Program

1. If you have a disability/medical issue protected under the Americans with Disabilities Act (ADA) and Section 504 of the Rehabilitation Act and need to request accommodations, please make an appointment with the Disability Services Program (DSP); 303.871.2372/ 2278/ 7432; located on the 4th floor of Ruffatto Hall; 1999 E. Evans Ave. Information is also available on line at http://www.du.edu/disability/dsp. See the Handbook for Students with Disabilities.

2. Any student who feels s/he may need an accommodation based on the impact of a disability should contact me privately to discuss your specific needs. Please contact the Disability Services Program located on the 4th floor of Ruffatto Hall; 1999 E. Evans Ave., to coordinate reasonable accommodations for students with documented disabilities/medical issues. 303.871. / 2278 / 7432/ 2455. Information is also available on line at http://www.du.edu/disability/dsp; see the Handbook for Students with Disabilities.

3. If you qualify for academic accommodations because of a disability or medical issue please submit a Faculty Letter to me from Disability Services Program (DSP) in a timely manner so that your needs may be addressed. Disability Services determines accommodations based on documented disabilities/medical issues. DSP is located on the 4th floor of Ruffatto Hall, 1999 E. Evans Ave.; 303.871. 2372/ 2278 / 7432. Information is also available on line at http://www.du.edu/disability/dsp; see the Handbook for Students with Disabilities.

DATE TOPIC* (Week is Monday-Sunday) READING

WEEK 1

Sep 10 Intro. into class Ch1, 2.1-.3, 3.2
12 Waves of Light Ch7.1-.3
14 Electrons as Waves Ch7.4-.5

Assignments Due

Sep 12 Module: Significant Figures and Unit Conversion
16 Homework 1 Chapters 1, 2.1-.3, 3.2, 7.1-7.5

WEEK 2

Sep 17 Quantum, Size & Shapes of Orbitals Ch7.6-.7
19 Electron Configurations of Ions Ch7.8-.9
21 Chemical reactivity Ch7.10-.12

Assignments Due

Sep 20 Module: Periodicity
23 Homework 2 Chapters 7.6-7.12
23 Module: Lewis Structures

WEEK 3

Sep 24 Chemical Bonds & Lewis Structures Ch8.1-.3
26 Resonance Structures, Formal Charge Ch8.4-.7
28 **EXAM 1 Ch 1-3, 7, 8.1-8.3****

Assignments Due

Sep 25 Module: Chemical Compound Naming
30 Homework 3 Chapters 8.1-8.7

WEEK 4

Oct 1, Bond lengths, VSEPR Ch8.8, 9.1-.2
3 Presidential Debate
5 VSEPR & Polar Bonds Ch9.2-.3

Assignments Due

Oct 7 Homework 4 Chapters 8.8-9.3

WEEK 5

Oct 8 Valence Bond Theory and Chirality Ch9.4-.6
10 Molecular orbital theory Ch9.7
12 Interactions of Molecules & Dispersion Forces Ch10.1-.4

Assignments Due

Oct 14 Homework 5 Chapters 9.4-9.7, 10.1-10.4
Oct 14 Module: Reactions

WEEK 6

Oct 15 Solutions, Electrolytes and Acid-Base Rxn Ch 3.2-.9 4.1-.5
17 **EXAM 2 Ch 8.4-8.8, 9, 10****
19 Acid-Base Rxn, Titrations, Precipitants Ch4.5-.7

Assignments Due

21 Homework 6 Chapters 3.2-3.9, 4.1-4.7

WEEK 7

Oct 22 Oxidation Numbers & Redox Reactions Ch4.8-.9
24 Bronsted-Lowry, pH, K_a & K_b Ch17.1-.3
26 Polyprotic Acids, Strengths of Acids & Basis, pH of Salt Solutions Ch17.3-.6

Assignments Due

Oct 28 Module: Thermochemistry
28 Homework 7 Chapters 4.8-4.9, 17.1-17.6

WEEK 8

Oct 29 Forms of energy Ch5.1-.3
31 Heat Capacity Ch5.4-.6
Nov 2 Hess's Law, Ch5.7-.8,14.1

Assignments Due

Nov 4 Homework 8 Chapters 5.1-5.8

WEEK 9

Nov 5 Entropy Ch14.1-.2
7 Third Law of Thermodynamics Ch14.3-.4
9 **EXAM 3 Ch 4, 17, 5****

Assignments Due

Nov 11 Homework 9 Chapters 14.1-14.4

WEEK 10

Nov 12 Free Energy Ch14.5-.6
14 Electrochemical Cells Ch19.1-.5
16 Overflow

Assignments Due

Nov 16 Homework 10 Chapters 14.5-14.6, 19.1-19.5
13 Module: Electrochemistry

Nov 20 **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.