

General Chemistry
CHEM 1010
Fall Quarter, 2012

Instructor Dr. Keith Miller
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Class Lectures: MWF 9:00 – 9:50; Olin 205
Office Hours: Announced first week in class

REQUIRED COURSE ITEMS

Textbook: *Chemistry: The Science in Context*, 3rd Edition, Gilbert, Kirss, Foster and Davies (2011) W.W. Norton & Company, Inc (available at the DU Bookstore).
Calculator: An inexpensive calculator is required. It should have the capabilities for square roots, logarithms, and exponential (scientific) notation operations. The calculator will be used for homework, quizzes, and exams. You are responsible for understanding how to perform each of the operations on your calculator.
Online homework: You will be required to submit homework and take quizzes via an online homework system called SmartWork. The cost of this access is included in your textbook. Instructions for enrolling in SmartWork are given on the course Blackboard.
Clicker: Clickers will be used throughout the course (also available at DU Bookstore). Please purchase during the first week of course.

READINGS AND ONLINE HOMEWORK. You are expected to complete the assigned reading prior to lecture. I recommend you understand the material and how to solve the problems in the text prior to proceeding to the next section. Problem solving is an important component of all chemistry and most science courses. On SmartWork, I will post suggested practice problems for you to complete during the reading. These problem **WILL NOT** be graded.

CLASS MEETINGS. I will highlight important concepts from your readings during lectures. I will stop periodically and ask you to answer questions. Starting the second week of the quarter, I will collect responses to your questions with Clickers. These questions will help me assess your understanding of the material in a timely manner. You will be given time to discuss the questions with your fellow classmates before answering the questions. Each day that clickers are used, you will receive a total of 2 points. The breakdown of points will be based on both your answers (1 points) and participation (1 points). I understand that absences occur and people have bad days; so, I will only count your top 10 scores toward your final grade.

ON-LINE MODULES. In past years, this course met four times/week with a help/discussion section on either Tuesday or Thursday. This year, the instructors of the course have worked together to develop online modules that will be an integral part of this course. Often this type of course is referred to as a “hybrid” or “blended” course. What this means is that part of your instruction and learning will occur outside of the class, directed by materials and resources found on the Blackboard site for the course. Each of the online modules will end with a graded and timed quiz. In the lecture immediately following the module deadline, I will first review the quiz material.

Then, we will apply the knowledge in class with group activities. Each module will be assigned 15 points (10 points for the quiz and 5 points of completion of an assessment of the module).

HOMEWORK/IN-CLASS ACTIVITIES. Practicing problems is very helpful in the mastery of chemical concepts. Thus, homework will be assigned throughout the quarter using the SmartWork system. The homework problems will be worth a total of 40 points. In addition to the online homework, I will assign in-class activities that will be completed during a meeting. These will typically follow the completion of an online module as well as other times throughout the quarter. These activities may or may not be announced in advance; thus, it is important to come to lecture every day since no makeup opportunities will be provided. Each activity will be worth 8 points. Since I understand that everyone may not have a great day (or even miss a day), I will only count your five (5) highest scores in your final grade.

EXAMS. There will be three (3) one-hour exams given during the quarter and a two-hour, cumulative final exam. Dates for these exams are posted on the tentative lecture schedule. **NO MAKE-UP EXAMS WILL BE ACCEPTED.** There is one exception to this policy. If you will be out of town for a University sanctioned function (e.g., athletic team or music group), you are responsible for making arrangements with Dr. Miller at least one week in advance to complete the exam prior to the scheduled date. If you miss an exam, then your final exam will be counted twice to replace the missed exam.

If you take all three (3) one-hour exams AND your grade on your final exam is higher than one of your hour exams, **then your final exam will be counted twice to replace your lowest hour exam grade.**

GRADES. At the end of the quarter, your final grade will be determined according to your performance on the exams, quizzes, and class participation/clicker scores. Cooperative learning is encouraged. As such, I will not grade on a curve. If most students do well, there will be a significant number of higher grades. The opposite, however, can also be true! Your final grade will be determined on a maximum of 800 points with the following components:

<u>Component</u>	<u>Points</u>
Hour Exams (100 points each)	300
Final Exam	100
On-line Modules (15 points each)	90
Assessment (pre- and post-tests; 5 points each)	10
Clickers	20
In-class activities/online homework	80
Total Points	600

Your final grade will be determined by the following scale:

	A		B			C			D		
Letter	A	A-	B+	B	B-	C+	C	C-	D+	D	D-
Percentage minimum	95	90	86	82	77	74	70	65	61	57	55

The values listed in the table are the guaranteed minimum values. So, if your average is 90, you will receive an A- for the course.

CELLULAR PHONE, PAGER AND LAPTOP POLICY. I respect the need for each individual to stay in contact with family and friends. The use of cellular phones and pagers, however, is disrupting to the learning environment. Thus, I request that the ringers of all cellular phones and pagers be muted during class. If an emergency arises, and you need to make a call on your phone, I request that you quietly leave the room and conduct your conversation out in the hallway. Laptops can be quite disrupting in class; therefore, ONLY laptops used for taking notes will be allowed. If you use your laptop, I might request that a copy of your notes be emailed to me at the end of class.

LECTURE AND TESTING ACCOMODATIONS. I will make every effort to accommodate students diagnosed with a learning disability. I will do this in complete confidence. I do, however, request that any student requiring these accommodations inform me the first week of class. For further information, please see the University Disability Services' website at <http://www.du.edu/disability/dsp/index.html>.

ACADEMIC DISHONESTY. While I advocate collaborative learning and teamwork, I also firmly believe that each individual should maintain the highest ethical standards in all of life's endeavors. As such, I support and will strictly enforce the Honor Code of the University of Denver. For your reference, I have included the link to the Honor Code Statement at <http://www.du.edu/ccs/honorcode.html>.

TENTATIVE LECTURE SCHEDULE (9.9.2012)

DATE	TOPIC	READING
WEEK 1		
QUANTUM-MECHANICAL MODEL OF THE ATOM		
Sep 10	Introduction/Nature of Light	1, 7.1
12	Atomic spectra/Quantum-Mechanical Model	7.2 - 7.4
13	<i>Module 1 due</i>	
14	Many-Electron Atoms	7.5 - 7.7
WEEK 2		
CHEMICAL PERIODICITY		
17	Periodic Table	7.8
19	Electron configuration	7.9
20	<i>Module 2 due</i>	
21	Chemical reactivity/trends	7.10 - 7.12
23	<i>Module 3 due (Note this is a Sunday)</i>	
WEEK 3		
CHEMICAL BONDING AND MOLECULAR SHAPE		
24	Chemical Bonding/Lewis structures	8.1 - 8.2
26	Resonance structures	8.3, 8.5 - 8.7
28	HOURLY EXAM I (Covers Sep. 10 - 26)	
WEEK 4		
Oct 1	Covalent bonds/VSEPR	8.8, 9.1 - 9.2
3	DEBATE – NO CLASS	
5	Bond and Molecular Polarity	9.3
WEEK 5		
8	Valence Bond Theory	9.4
10	Shapes of molecules	9.5 - 9.6
12	Molecular Orbital Theory	9.7
WEEK 6		
CHEMICAL REACTIONS		
15	Water as a Solvent; solutions	4.1 – 4.2
16	<i>Module 5 due</i>	
17	Chemical reactions	3.3 – 3.4
19	HOURLY EXAM II (Covers Sep 10 – Oct 17)	
	Last day for Automatic Withdraw	
WEEK 7		
22	Precipitation and Acid-Base Reactions	4.5 – 4.7
24	Acids, bases and pH	17.1 – 17.2
26	Oxidation-Reduction Reactions	4.9

DATE	TOPIC	READING
WEEK 8		
THERMOCHEMISTRY AND THERMODYNAMICS		
29	Energy	5.1 – 5.2
31	Enthalpy	5.3
Nov 2	Heat capacity/Calorimetry	5.4 – 5.5
WEEK 9		
5	Heats of Reaction	5.6 – 5.8
7	Entropy	14.1 – 14.2
9	HOURLY EXAM III (Covers Sep 10 - Nov. 7)	
WEEK 10		
12	Third Law of Thermodynamics	14.3 – 14.4
14	Free energy	14.5
16	Electrochemical cells	19.1 – 19.2
Nov 17	FINAL EXAM: 8AM to 9:50AM (Cumulative)	