General Chemistry
CHEM 1010
Fall Quarter, 2014

Instructor	Dr. Keith Miller
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Class Lectures:	MWF 10:00 – 10:50; Sturm251
Discussion:	Thursday 10:00 – 10:50; Sturm 251
Office Hours:	Announced first week in class

REQUIRED COURSE ITEMS

Textbook:	*Chemistry: The molecular nature of matter and change*, 7th Edition, Martin S. Silberberg and Patricia Amateis (2015) McGraw-Hill (available at the DU Bookstore). The 5th and 6th editions are also acceptable; however, a Connect Plus license from McGraw-Hill is still required.
Online Homework:	A Connect Plus license is required for the course. When you purchase your textbook at the DU Bookstore, this license is included. If you already have a text, you can purchase a license directly online from McGraw-Hill. This option will be made available when you attempt you first online assignment.
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. NO PHONES WILL BE PERMITTED ON QUIZZES OR EXAMS.

READINGS. 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.

CLASS MEETINGS. I will highlight important concepts from your readings during lectures. I will stop periodically and ask you to answer questions. In general, each week will start with a lecture on Monday that introduces the major concepts; you will then build on these discussions using materials and links provided online. On Wednesday and/or Thursday, students will work in small groups to complete in-class activities. Attendance to **at least one** of these sessions is mandatory, and work will be collected and graded. Each Friday's class meeting will begin with a short quiz, followed by a wrap-up of the week. Depending on the progress of the course, modifications to the weekly schedule may occur throughout the quarter. Every 3 weeks an exam will be given on Friday.

ON-LINE COMPONENTS. Some topics in this course will not be covered in lecture sessions; rather these topics will be introduced and made available online. 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. There will be three (3) areas of this course where your learning will be facilitated using online technology. First, weekly online homework will be assigned using the Connect Plus system that is linked to this course. These assignments will be graded. **With the exception of the**

1st and 10th week, these assignments will be due every Thursday at 11:59PM (Denver time). The homework will be submitted **automatically** at the designated time.

Second, an adaptive learning program, LearnSmart, is provided in the Connect Plus system. In addition to the weekly online homework, you will be required to complete at least one LearnSmart activity each week. These modules test your understanding of chemical concepts, and the program will lead you through a series of questions depending on how confident you are in your answers and if you answer the questions correctly. Completion of LearnSmart activities are required and you will receive credit when you complete them **on time**; however, you will not be graded on how "fast" you get through or how many questions you answered correctly in the activity. Typically, **completion of the LearnSmart activities will be required by Wednesday at 11:59PM (Denver time).** If you are attending the Wednesday group session, however, I strongly recommend that you complete the LearnSmart activity prior to the Wednesday session.

The third component online will be short review sessions that cover topics I expect you already understand from previous chemistry or science courses you have completed. The "Fundamental Sessions" will include short readings and/or videos, and assigned homework. These sessions are optional and will not be graded; however, I encourage everyone to at least attempt the homework since they are representative of questions that cover material I expect you already know and understand.

IN-CLASS ACTIVITIES/QUIZZES. In-class activities will occur on a frequent basis to allow you to apply your knowledge. Some, if not most, of these activities will be more challenging than the assigned homework. I will have you work in small groups to complete these activities. In addition, I will give short quizzes (5-10 minutes) on most Fridays to assess the progress of everyone in the class. Both the in-class activities and quizzes will be graded. In addition, a knowledge assessment will be given the first Friday of the course. This is to help me better understand your background knowledge in the course and better tailor the course to best meet the needs of all students. I will also end the course with a supplement assessment so that you can provide feedback on your learning process. You will receive credit for completing both of these assessment pieces.

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) or military service, 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, 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, online homework, LearnSmart and in-class activities/quizzes. 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 with the following components:

Component	Percentage
Hour Exams	60
Final Exam	20
LearnSmart modules	10
Online homework/In-class activities	5
Quizzes/assessments	5
Total	**100**

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 also 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.

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.

RELIGIOUS ACCOMODATIONS. It is University policy to grant students excused absences from class or other organized activities for the observance of religious holy days, unless the accommodation would create an undue hardship. I will do my best to accommodate your requests if you make arrangement with me *in advance* of your absence. Please examine the course syllabus, including the tentative schedule, for any potential conflicts with holy days and notify me prior to the end of the second week of classes of conflicts that may require your absence from class and/or prevent you from completing an assignment. More information can be found at: http://www.du.edu/studentlife/religiouslife/about-us/policy.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, the link to the Honor Code Student Conduct Policy and Procedures is: http://www.du.edu/studentlife/studentconduct/media/documents/scpoliciesandprocedures20142015.pdf

***TENTATIVE LECTURE SCHEDULE (9.7.2014)**

DATE	TOPIC	READING
WEEK 1		
QUANTUM-MECHANICAL MODEL OF THE ATOM		
Sep 8	Introduction/Nature of Light	1.1, 1.2, 7.1
10	Atomic spectra/Quantum-Mechanical Model	7.2-7.4
11	Many-Electron Atoms	8.1
12	Knowledge assessment	
	Online Fundamentals Session	*1.4-1.5*
WEEK 2		
CHEMICAL PERIODICITY		
15	Periodic Table	2.6, 8.2
17	Atomic Trends and Properties	8.3, 8.4
18	Discussion	
19	Chemical Reactivity	8.4
	Online Fundamentals Session	*2.1-2.5*
WEEK 3		
CHEMICAL BONDING AND MOLECULAR SHAPE		
22	Ionic Bonding	2.7, 9.1-9.2
24	**HOUR EXAM I** (Covers Sep 9 - 22)	
25	Discussion	
26	Covalent Bonding	9.3
	Online Fundamentals Session	*2.8*
WEEK 4		
29	Lewis Structures	10.1
Oct 1	VSEPR Theory	10.2
2	Discussion	
3	Bond and Molecular Polarity	9.5, 10.3
	Online Fundamentals Session	*3.1*
WEEK 5		
6	Valence Bond Theory	11.1
8	Types of Covalent Bonds	11.2
9	Discussion	
10	Molecular Orbital Theory	11.3
	Online Fundamentals Session	*3.2-3.3*

DATE	TOPIC	READING
WEEK 6		
CHEMICAL REACTIONS		
13	Water as a Solvent	4.1
15	**HOUR EXAM II** (Covers Sep 9 – Oct 13)	
16	Discussion	
17	Aqueous ionic and Precipitation Reactions	4.2-4.3
19	**Last day for Automatic Withdraw**	
	Online Fundamentals Session	*3.4*
WEEK 7		
20	Acid-Base Reactions, and pH	4.4, 18.1-18.2
22	Oxidation-Reduction Reactions	4.5-4.6
23	Discussion	
24	Balancing Redox Reactions	21.1
WEEK 8		
THERMOCHEMISTRY AND THERMODYNAMICS		
27	Enthalpy	6.1-6.2
29	Calorimetry	6.3-6.4
30	Discussion	
31	Heats of Reaction	6.5-6.6
WEEK 9		
Nov 3	Heats of Reaction (continued)	9.4
5	Entropy	20.1
6	Discussion	
7	**HOUR EXAM III** (Covers Sep 9 – Nov 6)	
WEEK 10		
10	Entropy (continued) and Free energy	20.2-20.3
12	Free energy	20.3
13	Discussion	
14	Review/wrap up	
Nov 17	**FINAL EXAM** (Cumulative) Monday, 10:00 - 11:50 a.m.	

* Tentative means that this is my best approximation of the schedule for the quarter. Actual lecture topics and materials may change.