General Chemistry I
CHEM 1010 Section 05
Autumn Quarter, 2018

Instructor: Ogar Ichire (Leo) Ph.D.

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Lecture: MWF 1:00 p.m. – 1:50 p.m. (F.W. Olin 105)

Recitation: T 1:00 p.m. – 1:50 p.m. (F.W. Olin 105)

Office Hours: MTW 2:00 – 3:00 p.m., or by appointment. Please email for appointments.

Required Text: ***Chemistry: The Molecular Nature of Matter and Change*** *- 8th Edition by* Martin Silberberg (Author), Patricia Amateis.

Course Objective:
This course is the first half of the first-year general chemistry sequence for chemistry and non-chemistry majors, and so one major objective is to provide a firm foundation of basic chemical principles that you will meet and use in the upper division chemistry classes. These concepts will help you understand advance topics in chemistry and how basic chemical principles control structure, function and application of molecules in chemistry. We will also investigate the scope and limitations of our understanding of these fundamental concepts. But our major objective is to build your thinking process about matter – its molecular representation, molecular structure, dynamics, energy, function and how to use all of these to study old properties and discovery new ones as well as determine novel applications and to create new knowledge.
The Silberberg textbook will be our guide in exploring the nature of matter and the course will follow the general progression of the book, but a linear-stepwise format of our understanding will dictate the presentation of the materials from the Silberberg book. Also, the evolution of each chapter and our comprehension of the course materials will be based on the Blooms Taxonomy, which can be summarized under the following cognitive levels of learning:

- **Lower Level**: learn, understand, and recall chemistry concepts.
- **Lower Medium Level**: Apply the knowledge and concepts learned to solve simple problems.
- **Higher Medium Level**: Draw connections between concepts – that is the ability differentiate, organize, isolate, integrate and use the right critical thinking process and concepts to solve composite and challenging problems.

- **High Level**: Analyze and evaluate each solved problem based on your knowledge of the chemical concepts – this means understanding is key to learning and solving problems in chemistry.

Once at the High Level of cognitive reasoning, I believe you would have gained a good understanding of the basic chemical principles used by chemist and scientist to investigate various chemical systems and understand how they work. Lastly, it is expected that a strong knowledge base from this course can help lower the learning curve for upper level chemistry courses, so take learning seriously in this course.

In order to get the most out of this course, I advise you:

- Review Silberberg textbook before and after each class. Preferable, read the whole chapter before class.
- Conduct searches after each class to find applications of the chemistry covered in class.
- Solve as many problems as possible instead of memorizing. This means that consistent work is required and will pay off much better than cramming for an exam or throwing together an assignment the last minute. Solving problems is one good way to understand chemical principles, and it also exposes the scope and limitation of each concept learned – memorizing does not.

Lectures: The lectures will generally follow the chapters of the textbook. Most lectures will be presented on the board and PowerPoint slides. ***Attending every class and taking meaningful notes is incredibly important for this class.*** Keeping up with the reading will help you understand the lectures better and take more meaningful notes. Also, we will work through problems during lectures and recitations to help you understand each concept and build the necessary problem solving skills required to excel in the class.

Recitation: Tuesday recitations will give us an opportunity to go over challenging problems from the homework assignments or review particular topics. Note: we may use some recitation sections for a normal lecture. There may also be short quizzes (1-2 questions, ~20 min) that could be worth bonus points.

Problems: You should work as many problems form the text as possible. The exams will focus on simple, applied and composite problems. Most composite type problems require a good understanding of various concepts and your ability connect two or more concepts together to arrive at a solution. The only way to prepare for these problems is to practice, practice, and practice. All problem types can be found in your text, and additional problems will be presented in class and during recitation. **A good strategy to studying in general may be to solve all the odd-numbered problems initially, and then the even ones as part of your exam review**. You are advised to keep a separate, dedicated notebook with all your solved problem for this course – it will make studying a lot easier and will come in handy for quick revision before exams.

Also, solving problems together can also be very helpful and I encourage you to go over solutions to problems in small groups after working the problems independently. Your

peers may have an alternate way of looking at a problem, and this can add to your toolbox of problem solving skills. Additionally, helping to teach the subject to your course mates is one way to understand the concepts yourself.

Homework: Homework is essential for developing the desired skills you will need to succeed in this class. The homework is computer-based and is through Connect Plus.

- **Online Homework through Connect:** There will be weekly problem sets to be completed online through the Connect system. **Homework will be due Monday nights at 11 pm.** These problems will be graded and normalized to 100 points over the course of the quarter. The lowest weekly homework score will be dropped. *Late submissions will receive no credit*. To get started, go to Canvas and follow the McGraw-Hill Connect Menu tab on the left of the course homepage.

Calculator: Any simple or graphing calculator would be sufficient for calculations covered in this course. You calculator should be capable of scientific notation, log, and exponential functions. If a graphing calculator is used, you must clear the memory before receiving the exam. On a typical TI-XX graphing calculator, the sequence is to press 2nd then '+' (MEM), then Reset, All RAM, Reset. A message will be displayed as RAM Cleared. This must be displayed before receiving the exam. I may inspect calculators and the memory during the exams.

Exams: There will be two midterm exams during the quarter worth 100 points each and a final exam also worth 100 points. If your final exam score is higher than either midterm exam score, the lowest score will be dropped and the final will replace that midterm.

Final Grade: Your final grade will be determined out of the 400 available points earned from exams, quizzes, and homework (plus all earned bonus points). **There will be no makeup exams.** If you miss an exam for any reason, that exam will be dropped and the final will count for 200 points**. The final exam is not optional – NO EXCEPTION**

Grade	Range	Grade	Range
A	**100 – 94 %**	**C-**	**<74 – 70%**
A-	**<94 – 90%**	**D+**	**<70 – 67%**
B+	**<90 – 87%**	**D**	**<67 – 64%**
B	**<87 – 84%**	**D-**	**<64 – 61%**
B-	**<84 – 80%**	**F**	**<60 – 0%**
C+	**<80 – 77%**		
C	**<77 – 74%**		

Note: Final grades and percentage ranges are subject to change by the instructor

Breakdown of Points

- ✓ Midterm: 50%
- ✓ Homework: 25%
- ✓ Final: 25%

Cell Phone and Electronic Device Policy:
While I understand that mobile devices have become integral to our lives, they are disruptive to the learning environment. Therefore, I request that all electronic devices be turned off (not muted) during class (i.e.; please don't text/Facebook/Snapchat/Tweet during class). If an emergency arises, and you need to contact the outside world during our lecture or recitation time, I request that you quietly leave the room and conduct your conversation outside. Additionally, most all of our lectures will require far too much structural drawing for effective notes to be taken on a laptop, so please leave these devices off during lecture.

Lecture and Testing Accommodations:
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 Integrity:
While I advocate collaborative learning and teamwork, I also firmly believe that each individual should maintain the highest ethical standards. As such, I support and will strictly enforce the Honor Code of the University of Denver. www.du.edu/honorcode.

Honor Code Statement.
All members of the University of Denver are expected to uphold the values of *Integrity*, *Respect*, and *Responsibility*. These values embody the standards of conduct for students, staff, faculty, and administrators as members of the University community. These values are defined as:

Integrity: acting in an honest and ethical manner;
Respect: honoring differences in people, ideas, and opinions;
Responsibility: accepting ownership for one's own conduct.

Pioneer Pledge.
As a University of Denver Pioneer I pledge…

- to act with INTEGRITY and pursue academic excellence;
- to RESPECT differences in people, ideas, and opinions and;
- to accept my RESPONSIBILITY as a local and global citizen;

Because I take pride in the University of Denver I will uphold the *Honor Code* and encourage others to follow my example.

Topics to be covered: Tentative Course Schedule – Subject to Change

Weeks	Date'18	Topic	Reading	Due
	M - 09/10	Chapter 1&2: The Components of Matter	Ch1&2	
	W- 09/12	Chapter 2: *Continued*		
Wk1	F - 09/14	Chapter 2*: Continue*		
	M - 09/17	Chapter 2*: Continued*		
Wk2	W - 09/19	Chapter 7: Quantum Theory and Atomic Structure	Ch7 7.0-7.4	
	F - 09/21	Chapter 7: *Continued*		
	M - 09/24	Chapter 7: *Continued*		
Wk3	W - 09/26	Chapter 8: Electronic Configuration	Ch8 8.0-8.4	
	F - 09/28	Chapter 8: *Continued*		
	M - 10/01	Chapter 8: *Continued*		
	W - 10/03	**Exam 1**		
Wk4	F - 10/05	Chapter 9: Models of Chemical Bonding	Ch9 9.0-9.5, 2.8,	
	M - 10/08	Chapter 9: *Continued*		
Wk5	W - 10/10	Chapter 10 & 11: The Shapes of Molecules and Theories of Bonding	Ch10 & 11 10.1-10.3	
	F - 10/12	Chapter 10 & 11: *Continued*	11 – 11.3	
	M - 10/15	Chapter 10 & 11: *Continued*		
Wk6	W - 10/17	Chapter 3: Stoichiometry Formulas and Equations	Ch3 3.1 – 3.4	
	F - 10/19	Chapter 3: *Continued*		
	M - 10/22	Chapter 3: *Continued*		
Wk7	W - 10/24	Chapter 4: Major Classes of Chemical Reactions	Ch4 4.1 – 4.6	
	F - 10/26	Chapter 4: *Continued*		
	M - 10/29	Chapter 4: *Continued*		
Wk8	W - 10/31	**Exam 2 (Cumulative)**		
	F - 11/2	Chapter 5: Gases and The Kinetic Theory	Ch5 5.1 – 5.5	
	M - 11/5	Chapter 5: *Continued*		
Wk9	W - 11/7	Chapter 5: *Continued*		
	F - 11/9	Chapter 6: Gases and The Kinetic Theory	Ch6 6.1 – 6.6	
	M - 11/12	Chapter 6: *Continued*		
Wk10	W - 11/14	Chapter 6: *Continued*		
	F - 11/16	Final Review		
	S - 11/17	**Final Exam (Cumulative)**		

C**anvas and Class Notes:**

Lecture information will be presented on the board as well as PowerPoint slides. the slides will be posted on Canvas in addition to other useful learning materials including suggested problems and assignments.