GEORGETOWN UNIVERSITY
Department of Chemistry
General Chemistry II - Summer 2018

General Information for CHEM 002 and CHEM 010

Prof. Diana C. Glick (Lecture and Lab)	Prof. Milena Shahu (Lab)
Regents Hall 211A 687-5961	Regents Hall 219B 687-4094
glickdc@georgetown.edu	ms756@georgetown.edu
Office Hours: by appointment	Office Hours: by appointment

Course structure:

Lecture/Recitation	MTWTh	8:10 - 11:25 AM
Scheduled Quizzes	MTWand/orTh	11:00-11:25 AM
Laboratory	MTWTh	12:10 - 2:45 PM

Lab, Chem 010, is a separate course. Concurrent registration in Chem 002 and Chem 010 is required, except with permission from the instructor.

Required Books: Chemistry the Central Science 13th Edition by Brown, LeMay, and Bursten

Laboratory Experiments Chemistry the Central Science Custom Edition for Georgetown University by Nelson and Kemp

Online homework through Sapling Learning is also required.

Sign-up Instructions:
https://www.macmillanlearning.com/Catalog/elearningbrowsebymediatype/SaplingLearning to log in or create an account. The following link includes detailed instructions on how to register for this course: https://community.macmillan.com/docs/DOC-5972-sapling-learning-registering-for-courses.

The course will emphasize both assigned reading/problem solving from the textbook and lecture material. Selected handouts will be provided as supplements to the textbook or laboratory manual as required. The online homework program will be utilized to give you more practice answering questions and solving problems.

Objectives: This course focuses on the chemical and physical properties of elements and compounds, the laws that govern their behavior and the theoretical pictures that help us understand this behavior. As well as expanding your knowledge of the physical world, there are three skills you will develop and hone: **Memorization skills** (in order to learn the language of chemistry you need to learn the alphabet, spelling rules and grammar!), **Deductive reasoning skills** (you must apply the information you learn to new problems you have not seen before - this comes from careful interactive study.), **Mathematical problem solving** (we will work on applying your math skills to chemical problems!)

Examinations: There will be two exams during the semester and a cumulative final exam. All students are required to take the final exam. The dates for the exams are given on the schedule. There will be **no makeup exams** in this class. If missing an exam is absolutely unavoidable the final exam grade will also count as the missed exam grade. Students who do very poorly on one of their exams, but did not miss an exam, may substitute the final exam grade for the lowest exam grade. Exams will emphasize theory, reactions and problems.

Quizzes: Quizzes will be given as indicated on the schedule. Quizzes are very important in helping you gauge your success with the material, learn to work quickly and efficiently on problems, as well as encouraging good study habits. No quizzes will be given outside of scheduled class times, but the lowest quiz grade will be dropped so one missed quiz is not a problem. Quizzes will be challenging in order to properly prepare you for exams.

Problem Sets: Problem solving is an extremely important part of the course. The primary goal of the homework assignments is not to provide a grade; most of it will not be collected or graded. The purpose is to guide students to a better understanding of the subject. It is very important to work hard on the problems, as they are the best means to learn the material in the course. Problem solving is a skill that requires practice to achieve success. Students are not prohibited from discussing the problems among themselves; in fact it is encouraged. A student should try each problem her/himself first, but it is important that one learn **how** to do the problems and not just the results of each individual problem. Students should feel free to come to class with questions!

Online Homework: These assignments will be worth credit toward your grade in the course. This work is meant to be a learning experience with immediate feedback. The work is graded and recorded by the online program. Online homework is each student's independent work and collaboration is not acceptable.

Attendance: Although attendance is not required/graded, it is most highly recommended. Students are responsible for making up any missed work in either lecture or recitation on their own. Makeup sessions are included in the lab schedule. All students that miss a lab must notify the professor in order to attend the makeup session.

Laboratory: Students are expected to be prepared for each experiment and obey all safety rules consistently. See the lab guidelines and lab general information handouts for details. Technically the lab is a separate course, CHEM 010. The lab grade is therefore reported to the registrar separately from the lecture grade. All students registered for CHEM 002 must also be registered in CHEM 010 unless they are excused with permission from the instructor.

Grading: Chemistry can be a very difficult body of material to master and the last thing you need is the added pressure of competing with each other for grades. My goal is to enable each student to learn as much of the subject matter as they can master. Therefore, the grades will be determined by how the scores fit into a fixed grading system, not how they compare with other scores in the class. There will be no scaling of grades. Note that an A will represent significant achievement, a very difficult, but certainly not impossible accomplishment.

Assessments

Exam I	20 %
Exam II	20 %
Final exam	30 %
Quizzes	20 %
Online Homework	10 %

Given below are the expected ranges for final grades in the course. If your final average is in this range, you are guaranteed at least the grade indicated.

92.5 % and above	A
89.5-92.4	A-
87.5-89.4	B+
82.5-87.4	B
79.5-82.4	B-
77.5-79.4	C+
72.5-77.4	C
69.5-72.4	C-
67.5-69.4	D+
59.0-67.4	D
below 59 %	F

Feedback: Please feel free to call me at my office, or send me e-mail, any time if you have questions or if you need anything clarified. Obtaining a coherent knowledge of chemistry is one of the first steps toward your goal and I am here to help you in every way possible. So, please let me know how I may serve you best. Work hard and take advantage of all the resources available to you.

GOOD LUCK !!! and **ENJOY !!!**

General Chemistry Lecture II - Summer 2018

Date	Topic	Text
7/09	Introduction and Welcome to the Second Semester of General Chemistry Shapes of Molecules; Polarity; Covalent Bonding: Valence Bond Theory	9.1-9.6
7/10	Molecular Orbital Theory; Spectroscopy Intermolecular Forces; Phase Changes: Phase Diagrams	9.7-9.8 11.1-11.6
7/11	Properties of Solutions and Colligative Properties	13.1-13.5
7/12	Kinetics Quiz 1 VSEPR and Polarity	14.1-14.4
7/16	Kinetics Review for Exam I Quiz 2 IMF's, phase changes, phase diagrams	14.5-14.7
7/17	**Exam I** 8:15 to 10:15 AM Chapters 9, 11, 13, 14.1-14.4 10:30 - 11:25 Equilibria	 15.1-15.4
7/18	LeChatelier's Principle and Equilibrium Problem Solving	15.5-15.7
7/19	Acids and bases, Brønsted/Lowry definitions; pH; Weak acids and bases	16.1-16.9
7/23	Relationship between structure and acid/base behavior; Lewis acids and bases Quiz 3 Kinetics	16.10-16.11
7/24	Buffers; Titrations Quiz 4 Equilibria and LeChatelier's Principle	17.1-17.3
7/25	Solubility product What makes a reaction spontaneous? Entropy and Gibb's free energy Quiz 5 pH of Aqueous Solutions	17.4-17.6 19.1-19.7
7/26	Balancing oxidation reduction reactions Quiz 6 pH of Aqueous Solutions	20.1-20.2
7/30	Harnessing the energy of spontaneous reactions; Voltaic cells Review for Exam II Quiz 7 Titrations	20.3-20.4
7/31	**Exam II** 8:15 to 10:15 AM Chapters 14.5-14.7, 15, 16, 17, 19.1-19.4 10:30 - 11:25 Catch up if necessary	
8/01	Nernst Equation, Concentration cells, Electrolysis	20.5-20.9
8/02	Coordination Chemistry Quiz 8 Entropy (Ch. 19)	23
8/06	Practice and problem solving: Electrochemistry and Coordination Chemistry Quiz 9 Balancing Redox Reactions, Voltaic Cells	
8/07	Nuclear Chemistry	21
8/08	Review for the final exam Quiz 10 Electrolysis	
8/09	**Final Exam** 8:15 to 11:15 AM Chapters 19.5-19.7, 20, 23, 21 (70%) and cumulative (30%)	

CHEM 010 General Chemistry Laboratory II: CHEM 010-20/22
Schedule of Laboratory Experiments – Summer 2018

Date	Exp. #	Topic	Questions Assigned
7/09	-	New student check-in, Safety and Tour of the Lab New students will purchase a lock and goggles from the chemistry stock room at this time.	
7/10	Q 11	Lab safety quiz Molecular Geometry (Due 7/12)	Complete the report sheet
7/11	Handout (posted on Bb)	Evaporation and Intermolecular Attractions (Due 7/16)	1-4
7/12	19	Colligative Properties (Due 7/17)	1-8
7/16	-	Make-up (if a lab has been missed, it must be done at this time)	
7/17	-	No Lab	
7/18	29	Iodine Clock Reaction (Due 7/23)	Complete calculations
7/19	S35-S44*	Kinetics of Fading Phenolphthalein (Due 7/24)	Write a formal report‡
7/23	23	LeChâtelier's Principle (Due 7/25)	Complete the report sheet
7/24	20	Titration of Acids and Bases (Due 7/26)	1-6
7/25	I40 (posted on Bb)	What is the Acid Dissociation Constant? (Due 7/26)	Procedure
7/26	I40 (posted on Bb)	What is the Acid Dissociation Constant? (Due 8/01)	Report (guidelines posted)
7/30	-	Make-up (if a lab has been missed, it must be done at this time)	
7/31	-	No Lab	
8/01	S47-S54*	Solubility Product (Due 8/06)	Write a formal report‡
8/02	16**	Electrolytic cells (Due 8/07)	1-5
8/03		Check Out (All students must complete check out on this day)	
8/07		No Lab	
8/08		No Lab	
8/09		No Lab	

The pre-lab assignment for all labs is to complete all "pre-Lab" questions before the beginning of lab and an outline of procedure.

*This denotes the page numbers from the Supplement section of the Custom lab manual.
**Additional information is posted on Bb. READ this info before lab.
‡See Bb for "Formal Lab Report" Instructions