

C H e m I s t r y o f t h e E l e m e n t s

Spring 2018

Chem 2131

Instructor- Dr. Brittney Rodgers (Please call me "Dr. Rodgers")

Email- brittney.rodgers@du.edu

*I check my email regularly throughout the week, but less regularly on the weekends.

Lectures: T/R 8:00-9:50 in Engineering & Computer Science 410

Office Hours: I will be available before class on Tuesdays (location TBD) and after class on Thursdays (at the science and engineering center). **If you need to meet with me privately regarding a grade, please set up an appointment with me via email**

Text: We will be using a few texts including two Open Access (FREE) texts this quarter:

- 1.) **Text:** Connect Chemistry with LearnSmart and eBook - *Chemistry: The Molecular Nature of Matter and Change, 8th Edition, Silberberg, McGraw-Hill Publishers* - \$95 (6 Months) or \$130 (2 Years)

****I recommend you purchase directly from McGraw-Hill.**

No paper text is required but you can buy a used copy of Silberberg text if you wish (The Connect Plus account is still required).

Other required materials:

- 1.) **Calculator:** You must have a scientific calculator for this class. It should be able to perform basic log and exponential functions. Graphing calculators are fine, but you will **not be allowed any other electronic device** on exams. **Bring your calculator to class each day to work problems.** You are responsible for understanding how to use your own calculator, I will try to assist you if I can in class, not on exams.
- 2.) **Kahoot:** We will be using the app Kahoot as a way to work together during class time. This is a free app that you can put on your smartphone or laptop. Please bring a device to class each day to participate and receive credit for your participation.

Course Objectives: Each student will learn principles such as coordination chemistry, descriptive chemistry, solid-state chemistry, nuclear chemistry and information literacy. Students will use their knowledge of these concepts to address chemical problems. Associated goals are to sharpen critical thinking and develop a solid basis for future study in molecular sciences.

Canvas: canvas.du.edu will be the website that you can find all of the online aspects of this course. Please look at the weekly checklist to keep track of tasks (under modules).

Lectures/Recitations: A lecture schedule is below. As a student you will be expected to read and study the assigned material before each lecture. Class members are encouraged to take an active part in class lectures. Questions and problems will be addressed relating to recent material.

Assignments:

Every week, problems and/or connect adaptive learning assignments related to the lecture material will be assigned. You are responsible for completing the assignments. Assignments for the week will be turned in every Thursday by 11:59 PM via Connect or Canvas depending on the assignment.

Infographic/Information Literacy: This quarter you will be asked to create an infographic describing an element or a topic related to this course. This assignment is designed to be complimentary with your WRIT 1133 course. For this project you will work in teams of 2. The details of this assignment can be found on canvas.

Kahoot & Active Classroom: To enhance learning, we will be mixing traditional lectures with online lectures to spend more time during class actively working through materials. I recommend taking hand-written notes while watching the online lectures to help absorb the material. You will be given quiz/journal questions to help gauge your comprehension. You will get the most out of this class by coming to class. There will be points associated with participation every day. We will be using an app called Kahoot, to help facilitate the assignment of participation credit.

Exams:

a) There will be two midterm exams and a final exam.

b) If anyone for any reason had to take the exam outside of the scheduled time, arrangements need to be made with the instructor at least one week in advance. Instructor approval of the situation is necessary for any adjustment in exam schedule to occur.

c) If any student is a member of the DSP or LEP programs and feels they need special accommodations for exams, please contact the instructor.

d) All exams will be comprehensive encompassing lecture materials, assignments, and laboratory material. The exams are designed to test your ability to apply the concepts covered in the lecture.

e) If your grade on your final exam is higher than one of your midterm exams, your final exam will be counted twice to replace your lowest midterm grade.

Grading:

The breakdown of the course grades is as follows:

Homework	100 points
Participation& Quizzes	150 points
Infographic Project	150 points
Exams (200 points each)	400 points
Final Exam	200 points
TOTAL	1000 points

Grades will be based on the following approximate grade scale:

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

Students who earn at least 94% of the possible points are guaranteed an A in this class; however, it may not be necessary to earn 94% to receive an A since this scale may be modified downward at the discretion of the instructor. Scores will be recorded on canvas. Each student should check canvas frequently to make sure scores are recorded correctly. Complaints on grading or recording errors should be made within one week of each exam.

Help

Students who need help in this class have several options:

(1) The Science and Engineering Center, located on the first floor of the library, is a great resource! TAs are available throughout the week to answer questions on both lecture and lab material. A schedule is available on canvas and on the Science and Engineering Center portfolio site: <http://portfolio.du.edu/sec>

(2) The instructor has office hours for consultation. If you cannot make the set office hours, you can schedule an appointment.

(3) Peers (Study Groups): Take opportunities to help those around you and to ask for help. You can learn a lot from your fellow classmates. If you come to the Science and Engineering Center, perhaps you will find a group of classmates to study with!

TAs and the instructor are willing to help anyone in need. There is no excuse for not getting help. Your best help may come from your fellow students. Meeting regularly with a study group, for discussing ideas and working together on homework is one of the best things you may do in learning and understanding the material. Even if you don't think you need the help from others, you will often find that giving help can be as beneficial.

Academic Honesty in Chemistry of the Elements:


- 1.) 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, faculty, staff, and administrators as members of the University community. Our institutional 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.

- 2.) You are encouraged to study with other students in preparing for exams and discussing assigned problems to be submitted as homework.
- 3.) However, each student is required to provide their own work on homework and exams. Copying an exam or homework is a violation that will not be tolerated in this class, and a zero will be given for the assignment or exam. Repeated offences will result in failure of the course.

Science and Engineering Center: Need extra help? The Science and Engineering Learning Center is a collaborative space staffed by undergraduate and graduate learning assistants (LAs) trained to assist students with some first and second year biology, chemistry, physics, computer science and engineering courses. They offer support for both lecture and laboratory courses for chemistry, physics, and engineering courses and lecture only for computer science and biology. The goal is to help students grow as problem solvers by assisting with homework sets, lab reports, and preparing for exams. The Science and Engineering Learning Center is **not** a one-on-one tutoring center, but is rather a support system where students can get guidance from LAs as well as their peers. This center is open to all DU students. All services are free. Located in the north-west corner of the first floor of the Anderson Academic Commons (west of the writing center). See <http://portfolio.du.edu/sec> for a complete schedule. Please also follow on Twitter for the most up-to-date announcements:  [@SELcatDU](https://twitter.com/SELcatDU)

Tentative Lecture & Homework Schedule:.

Date	Topic	Silberberg	Assignments
Week 1 3/27, 3/29	Brønsted-Lowry and Lewis Acid-Base Theory, HSAB, Line Structures Introduction to Coordination Chemistry: Coordination, Ligands, and Structure. Nomenclature of Coordination Compounds	S: 18.1–18.3 S: 23.1–23.3	HW: Week 1
Week 2 4/3, 4/5	Structure and Isomerism Coordination Bonding Theory	S: 23.1–23.4	HW: Week 2
Week 3 4/10, 4/12	Crystal Field Splitting, Spectrochemical series Magnetic Properties and Absorption Spectroscopy/ Color Applications of Coordination Compounds	S:23.4	Topics and Groups for Infographic Due HW: Week 3
Week 4 4/17	EXAM #1		
Week 4 4/19	Intermolecular Forces (Review) Properties of Solids: Ionic, Network, and Molecular crystals	S: 12.1–12.7	HW: Week 4
Week 5 4/24, 4/26	Solid-state structures: Crystal Lattices and Unit Cells and Lattice Energy Periodic Trends: Ionic Radii, Electronegativity, Uniqueness principle, Diagonal Effect, Inert Pair Effect	S: 12.5–12.7 Supplemental	HW: Week 5
Week 6 5/1, 5/3	Begin Survey of Periodic Table: Hydrogen Isotopes & Nuclear reactions Nuclear Radiation and Energy Applications of Nuclear Chemistry	S: 14.1 S: 24.1-24.5	Infographic Rough Draft Due HW: Week 6
Week 7 5/8, 5/10	Oxidation-Reduction Review Electrochemical Cells & Nerst Equation Redox & Metallurgy	S: 21.1-21.4 S: 22.3–22.4	HW: Week 7
Week 8 5/15	EXAM #2		
Week 8 5/17	Group 1A & 2A: Alkali Metals &Alkaline Earth Metals Group 3A Elements	S: 14.4-14.5	HW: Week 8
Week 9 5/22, 5/24	Group 4A Elements & Carbon Cycle Group 5A Elements & Nitrogen and Phosphorous Cycles Group 6A Elements	S: 14.6-14.8 S: 22.2	Infographic Final Draft Submission HW: Week 9
Week 10 5/29, 5/31	Halogens Nobel Gases	S: 14.6-14.10	Infographic Peer Review Due HW: Week 10
Final 06/05	FINAL EXAM		