

## **Chemistry 1010 (Autumn 2021)**

**Professor: Dr. Melissa Pope**

**Email: [melissa.pope@du.edu](mailto:melissa.pope@du.edu)**

**Office: Mudd 229**

**Zoom: <https://udenver.zoom.us/j/2730134030>**

**Class Meetings: T/R 8-9:50am in Olin Hall 205**

**Dr. Pope's Office Hours: TBA**

**TA Office Hours at the [Science and Engineering Learning Center](#): TBA**

### **COURSE INTENTION**

Welcome to General Chemistry! It is my goal to create an opportunity for you to actively participate in synthesizing the new information you are learning toward building the knowledge you need to succeed in this course + the knowledge and skills you need to succeed in your future academic endeavors. We will take time during this course to examine the material, practice problems with each other, and develop/discuss strategies for effective studying. Your learning and success in this course is very much dependent upon the preparations and contributions you make. It is my hope that we develop a community that seeks to help one another and for our class to be an environment in which everyone feels comfortable sharing their ideas and questions.

We will cover a lot of material, and it may feel at times that things are moving uncomfortably quickly. This course is designed to help you keep up with the material (e.g., weekly reading assignments, weekly homework and bi-weekly quizzes). This course is also designed to assist you in learning how to read and approach a variety of chemistry problems (e.g., weekly in-class problems and group work).

Because we will take our time in class to examine and grapple with course material together, we cannot cover every element of the course material in class/in detail in class. You will need to do a significant amount of work outside of class both on your own, with your classmates and with your Teaching team (Professor + Learning Assistants in the Science and Engineering Learning Center). It is normal to struggle in this course. Don't give up! Stay motivated by remembering your goals! And ask for help, preferably immediately upon a need arising!

I am here to help you through this course. I see each of you as a unique individual and I am dedicated to meeting your unique needs for support in this course. I understand what it is like to take this course and do not expect you to learn the material quickly and easily. It

gives me joy to provide classroom/small group/individual help that saves you some time and struggle. I also expect great effort from you.

## COURSE OBJECTIVES

After General Chemistry, you should be able to do the following:

1. Describe and apply essential concepts in the following areas including:
  - Atomic/Electronic Structure: Demonstrate foundational knowledge of the quantum nature of electrons and light. Relate atomic spectra to electronic transitions.
  - Periodic Table: identify the connection between the quantum model and the structure of the periodic table. Recognize and predict periodic trends.
  - Bonding Theories: Including Lewis, VSEPR, VBT, and MO theory. Identify when a bonding theory is most appropriate for a situation. Predict molecular shapes and polarity by applying VSEPR and electronegativity. Recognize different types of intermolecular interactions
  - Stoichiometry: Identify and Balance different types of complex chemical reactions. Use stoichiometry to be able to predict amounts of products or reactants necessary for a reaction. Be able to design how to make and dilute solutions with a specific concentration.
  - Heat & Thermodynamics: Describe and apply the first law of thermodynamics. Calculate heats of reactions from both a theoretical standpoint and using calorimetry.
2. Develop a growth mindset: Demonstrates significant effort and celebrate personal growth in various contexts and applications in chemistry.

## REQUIRED COURSE MATERIALS

**Text:** *Chemistry: The Molecular Nature of Matter and Change, 9th Edition, Silberberg (McGraw-Hill Publishers)*. You will need to set up a “McGraw Hill Connect” account with LearnSmart and eBook through the McGraw Hill website. No paper text is required; however, you can purchase a hard copy of the textbook online (e.g., via Amazon) if you wish to. An older edition of the textbook can be used as your supplemental hard copy.

**Calculator:** A non-programmable scientific calculator capable of logarithms, exponentials and scientific notation. It will be used for homework, quizzes, and final.

## **COURSE TOPICS BY WEEK**

WEEK 1 – DIMENSIONAL ANALYSIS & INTRO TO MODELS

WEEK 2 – QUANTUM MECHANICS & ATOMIC STRUCTURE

WEEK 3 – ELECTRON CONFIGURATION & PERIODIC TABLE

WEEK 4 – BONDING MODELS

WEEK 5 – BONDING MODELS

WEEK 6 – BONDING MODELS & INTRO TO CHEMICAL RXNS

WEEK 7 – STOICHIOMETRY & CHEMICAL RXNS

WEEK 8 – CHEMICAL RXNS & INTRO TO GASES

WEEK 9 – KINETICS

WEEK 10 – KINETICS

## **COURSE COMPONENTS**

**Reading Assignments:** Weekly reading assignments out of the textbook will be due on Sunday nights. Because much of our class time will be spent on discussion and problem-solving, it is very important that you read the textbook before our class meetings. It will help you get the most out of class time! I understand that reading brand new information out of a textbook can feel daunting. Please discuss strategies with your classmates, learning assistants, and Faculty in order help you make your reading time the most efficient and productive as possible.

**Summary Notes:** Each week, you will be turning in summary notes about your reading assignment. To start, you will describe your prior knowledge on the topic(s) in your reading assignment. You may also be asked to define/describe specific Key Terms from the text and/or generate a diagram or drawing. You will turn in these notes on Canvas on Sunday nights.

**Lectures** will be in person according to the schedule published in the Schedule of classes. Please show up ready to learn and engage! Please ask questions at any point during our class meetings. When we are convened as a large group (i.e., not engaged in small group work), please refrain from side conversations. Asking your questions to the entire room is a benefit to everyone! You are probably not the only student with a particular question, and somewhere in the room one of your classmates is thinking “thank you for asking that question!”

Please see the POLICIES section below to read about the University guidelines for attendance in lecture in light of COVID-19.

**Group Work:** We will engage in group work every week during class. You will select your group during the first week of class, and groups will remain constant throughout the Quarter. Group work will be graded on completion (not accuracy); however, it is in your best interest to ensure that you are completing your assignment accurately by checking your work with me throughout the group work session.

**In-class Participation using Kahoot:** This quarter we will be using [Kahoot](#) as a polling software. Kahoot is a FREE app that you can download to your phone or you can use Kahoot from a laptop.

**Homework:** Homework assignments will be through McGraw Hill Connect and will be due every week on Friday. I encourage you to start your assignment early in the week and seek help on the questions that you are struggling with well-before Friday. Because we have a tight schedule for covering the material we need to cover, you may be asked questions on your homework that are not covered in lecture until the later part of the week. Your reading assignments will be helpful in answering these questions! And answering homework questions throughout the week as the topics are covered in lecture may also prove a good strategy for avoiding an undesirable Friday!

**Office Hours:** I encourage you to think of Office Hours as an integral part of the course. I am available every week to help you with your coursework and Teaching Assistants are available every week in the Science and Engineering Learning Center to help you with your coursework.

**Group Project:** Details TBA.

**Reflections** will be completed each week on Tuesdays. The weekly reflection is to help me keep track of what questions are coming up for you / what material everyone is struggling with so that I can provide targeted assistance in these areas. Reflections will also assist you with developing and perfecting your “plan of attack” for regular coursework activities as well as Quizzes/Exams.

### **Quizzes and Exams:**

1. There will be 5 (bi-weekly) in-class Quizzes.
2. There will be one cumulative Final Exam on the date and time published by the Registrar.
3. All Quizzes and Exams will be comprehensive, encompassing lecture materials, reading assignments, in-class assignments, and homework assignments. They are designed to test your ability to apply the concepts covered in the lecture. The questions on your assessments will not be “out of left field” but they will also not be repeats of the exact questions/question types that you have seen in your assignments.
4. Only non-programmable calculators are permitted for use during a quiz or exam. Be sure you know how to use the features on your calculator required to perform the calculations

anticipated on the quiz or exam. Cell phones may not be used to perform computations or to check the time. Be sure you have an extra calculator and/or batteries. Calculators may not be shared during a quiz or exam.

## **GRADE BREAKDOWN**

Summary Notes and Reflections	15% of your course grade
Group Worksheets and Kahoot!	15% of your course grade
Homework	20% of your course grade
Group Project	10% of your course grade
Quizzes	30% of your course grade
Final Exam	10% of your course grade

## **RESOURCES FOR HELP WITH THE COURSE MATERIAL**

I encourage you to get engaged early in Quarter in one or more of the following modalities:

1. The Science and Engineering Learning Center. It 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. We offer support for both lecture and laboratory courses for chemistry, physics, and engineering courses and lecture only for biology. Our 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. Limited Zoom hours will also be provided to accommodate for students who cannot visit the SEC in person.

*SEC COVID-19 UPDATE:* Due to the ongoing pandemic, students must sign up for a “seat” in the science & engineering center so that we can contact trace:

<https://isarsgrid.du.edu/eSARS/scienceandengineering/eSARS.asp>

2. Office Hours. If you cannot attend my regularly scheduled office hours, please email me to set up an appointment.
3. Peer Study Groups: Help those around you! Explaining things to others is a sure-fire way to improve your own understanding. Ask those around you for help! Most students have

some things they understand well and some things they struggle with. Luckily, those things are different for everyone – you can give help in your strong areas and accept help in your struggle areas.

## ACADEMIC HONESTY

1. To protect privacy and intellectual property rights, course videos, student discussions, and other course materials may be used solely for the purposes of individual or group study with other students enrolled in the class in that quarter. They may not be reproduced or shared in any way (including electronically or posting in any web environment) with those not in the class in that quarter, except with explicit permission. Students who violate this policy will be reported to The Office of Student Rights & Responsibilities and may be subject to both legal sanctions for violations of copyright law and disciplinary action under Student Rights & Responsibilities Policies.
2. Can I work with someone on that assignment? Please use the table below to help you know which assignments you can collaborate on, and which assignments you must do independently:

Activity	Is collaboration appropriate?
<b>Summary Notes</b>	Yes! You are encouraged to discuss the content & notes with other students. However, the notes/reflections you submit should represent your own work.
<b>Group Work</b>	Yes! You will be working on these activities collaboratively & will have just one submission from the entire group for each activity/assignment.
<b>Homework</b>	Yes! You are encouraged to discuss the homework with others in your class. However, the homework you submit should represent your own work.
<b>Reflections</b>	No, the reflections are designed to support you as a unique learner. They will serve you best if you complete them based on your own individual experience.
<b>Quizzes</b>	No, these quizzes should be entirely your own work. It is not appropriate to discuss the questions with ANYONE inside or outside the class. Students who post to any web environment (such as Chegg/Course Hero) will be reported to The Office of Students Rights & Responsibilities. You will also receive an automatic zero on the assignment.
<b>Final Exam</b>	No, the final exam should be entirely your own work. It is not appropriate to discuss the questions with ANYONE inside or outside the class. Students who post to any web environment (such as Chegg/Course Hero) will be reported to The Office of Students Rights & Responsibilities. You will also receive an automatic zero on the assignment.

## **ATTENDANCE**

It is the expectation that you attend class in person as required unless you have made alternative arrangements with me prior to the start of class due to illness, medical reasons, [other reasons], or the need to isolate or quarantine due to COVID-19. As in any in-person course, attendance and participation are crucial for a complete understanding of course material. In choosing to attend the University of Denver, you've chosen to join a larger Community of Care, which means you've chosen specific responsibilities—including in this class. By enrolling in the University of Denver and in this course, you have agreed:

- Not to attend class when you're sick.
- Not to attend class when you've been exposed to people who have or may have COVID-19.
- To follow the university's masking policy.

According to university policy: "When the University places DU students or personnel in isolation or quarantine, the individual will receive documentation within their MyHealth record to provide to instructors regarding the duration of their quarantine or isolation and when and under what conditions they may return to in-person activities. The student is responsible for providing this documentation to instructors. The DU COVID Team can provide verification of a student's need to be isolated/quarantined should there be any question regarding compliance with University attendance and related COVID-19 policies. If a student must miss an in-person session due to illness (prior to having results from a COVID-19 test or when experiencing other symptoms of a communicable illness), the usual sickness policies should apply to the missed session. For example, if the instructor would normally require a doctor's note, that policy should apply. If a student receives a positive COVID-19 test off-campus or is notified by a public health authority about the need to quarantine, they must provide this notification at [reportCOVID@du.edu](mailto:reportCOVID@du.edu) or by calling 303-871-COVID. The University will then place the student in isolation and quarantine pursuant to University protocols, and this policy will apply."

## **SEATING AND GROUP ASSIGNMENTS**

To assist in contact tracing efforts, DU faculty have been asked to keep track of close contacts (6ft or closer) in classrooms of 20 or more students. Please help me by committing to sit in the same place each class day, learning the names of your close-by peers, and self-identifying your seat choice on the document provided.

When we engage in smaller group work, we will need to document the names of members of small groups. So that we can continue to engage in active learning and small group work, I will be asking you to help keep track of small group membership should we need it for contact tracing.

From the policy “To facilitate contact tracing, instructors must record selected seats in classes of 20 or more students. Instructors will be provided a floor plan of their classroom and asked to document the selected seats of each student and provide these assignments to the Office of the Registrar via the email address [seatassignments@du.edu](mailto:seatassignments@du.edu). Instructors are welcome to have students select their preferred seat on the first day and simply record these selections; however, students must sit in the same seats moving forward. In the event your pedagogical approach depends on reseating or if you have changes at the add/drop period, please provide an updated seating chart at that time. In contexts where seating is not utilized, instructors are instead encouraged to help students learn each other’s names to facilitate contact tracing if necessary. Instructors will be asked to provide an initial seating chart and to update this chart after the add-drop period as needed. To facilitate recording seat selections in larger classes, instructors will be provided stickers with their students’ names via their department and classroom seats will be numbered.”

## **NO EATING IN CLASS**

To assist in COVID mitigation, students are not permitted to eat during classes, except where a student has an approved accommodation through the Disability Support Program (DSP). Please plan accordingly.

## **COVID-RELATED CONTINGENCIES**

This course has been designed to transition to entirely online, should the need arise due to tightening local, state, or federal guidelines or campus closure. To that end, Canvas will be utilized to support this course. It is recommended that you familiarize yourself with the Canvas container for this course as soon as the term begins.

If you are self-quarantining/isolating, you can access course materials and complete both in-class and at-home coursework.

The following will be available in our Canvas course:

- the course syllabus
- in-class assignments
- reading assignments
- homework instructions
- reflections
- quizzes

Updates that affect the delivery method of this course will be communicated in a timely fashion. If it becomes necessary to move this course completely online, any changes will be communicated to the students via Canvas.



## **MASK USAGE**

University of Denver continues to use an alert level system from clear (low risk, high vaccination) to purple (severe risk). See [here](#) for details. At certain levels, mask requirements vary depending on your vaccination status.

As we begin the fall term with level green, the following guidelines are in place based on vaccination status.

### Unvaccinated Individuals

In level green, people without verified full vaccination must wear face coverings at all times except in private offices or residential rooms or while actively eating or drinking.

### Vaccinated Individuals

Face coverings also are required for fully vaccinated individuals indoors for all classes and all in-person meetings/events with 5 or more people, except while actively speaking/performing at six feet or more distance from others or while actively eating or drinking.

Should the university transition to level “clear”, campus policy states, “all DU personnel and students without verified full vaccination records must wear face coverings/masks at all times while indoors. Anyone may choose to wear a face-covering/mask at any time for any reason. While individuals with specific health risks or vulnerabilities may ask coworkers or classmates to wear a mask, because the University policy does not require individuals who are fully vaccinated to wear face coverings/masks, this cannot be required.”

### Faculty

Per campus policy, when the campus alert level is green, vaccinated individuals may remove their mask for speaking so long as 6 feet of social distancing between the speaker and the audience is maintained. When the campus alert level is blue, that distance increases to 12 feet. If campus alert levels allow, I will not be wearing a mask while lecturing at a distance. Regardless of campus alert levels, if you would like to speak with me in close quarters (before/after class or in my office), I will wear a mask and would prefer it if you would, too.

## **STUDENTS WITH DISABILITIES/MEDICAL ISSUES**

Any participant who feels they may need an accommodation based on the impact of a disability should contact us privately to discuss their specific needs. Additionally, please contact the **Disability Services Program** (DSP) located in room 440 of Ruffatto Hall; 1999 E. Evans

Ave. to coordinate reasonable accommodations for students with documented disabilities. Phone: 303.871.3241. Information is also available online from the [Disability Services website](#).

## **RELIGIOUS ACCOMMODATIONS POLICY**

As part of its commitment to diversity and Inclusive Excellence, the University provides reasonable accommodations for students' sincerely held religious beliefs or practices unless the University determines that such an accommodation would fundamentally alter the curriculum or academic program. Students are expected to examine the course syllabus for potential conflicts with religious beliefs or practices, and submit the Religious Accommodation Request webform to seek accommodation. [Requests for absences from an internship or externship, field placement, or other practical learning experience outside the classroom will be assessed on an individual, case-by-case basis in consultation with the University placement supervisor and the field placement supervisor.] Students who have conflicts with the overall class or experience schedule, such as the time and date the class is offered, are encouraged to find an alternative section for the class. For full details, including request process, visit the [Religious and Spiritual Life web page](#).

## **HONOR CODE/ACADEMIC INTEGRITY**

All work submitted in this course must be your own and produced exclusively for this course except where collaboration is explicitly allowed. The use of sources (ideas, quotations, paraphrases) must be properly acknowledged and documented. For the consequences of violating the Academic Misconduct policy, refer to the University of Denver website on the Honor Code ([www.du.edu/honorcode](http://www.du.edu/honorcode)). See also <http://www.du.edu/studentconduct> for general information about conduct expectations from the Office of Student Conduct.

## **TURNITIN PLAGIARISM DETECTION SOFTWARE WITHIN CANVAS**

Students agree that by taking this course all required papers may be subject to submission for textual similarity review to Turnitin.com for the detection of plagiarism. All submitted papers will be included as source documents in the Turnitin.com reference database solely for the purpose of detecting plagiarism of such papers.

## **INCLUSIVE LEARNING ENVIRONMENTS**

In this class, we will work together to develop a learning community that is inclusive and respectful. Our diversity may be reflected by differences in race, culture, age, religion, sexual

orientation, socioeconomic background, and myriad other social identities and life experiences. The goal of inclusiveness, in a diverse community, encourages and appreciates expressions of different ideas, opinions, and beliefs, so that conversations and interactions that could potentially be divisive turn instead into opportunities for intellectual and personal enrichment.

A dedication to inclusiveness requires respecting what others say, their right to say it, and the thoughtful consideration of others' communication. Both speaking up and listening are valuable tools for furthering thoughtful, enlightening dialogue. Respecting one another's individual differences is critical in transforming a collection of diverse individuals into an inclusive, collaborative and excellent learning community. Our core commitment shapes our core expectation for behavior inside and outside of the classroom.

## **MENTAL HEALTH & WELLNESS**

As part of the University's Culture of Care & Support we provide campus resources to create access for you to maintain your safety, health, and well-being. We understand that as a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug concerns, depression, difficulty concentrating and/or lack of motivation. These stressful moments can impact academic performance or reduce your ability to engage. The University offers services to assist you with addressing these or ANY other concerns you may be experiencing. If you or someone you know are suffering from any challenges, you should reach out for support. You can seek confidential mental health services available on campus in the Health & Counseling Center (HCC) and My Student Support System (My SSP). Another helpful campus office is Student Outreach & Support (SOS), where staff work with you to connect to all the appropriate campus resources (there are many!), develop a plan of action, and guide you in navigating challenging situations. If you are concerned about yourself and/or one of your peers you can send a SOS referral.

More information about HCC, MY SSP, and SOS can be found at:

- [Health & Counseling Services](#)
- [My SSP 24/7 confidential services for students \(Links to an external site.\)](#)
- [Student Outreach & Support \(SOS\) and SOS Referrals](#)

## **DISCRIMINATION, HARASSMENT & GENDER-BASED VIOLENCE (TITLE IX)**

Discrimination, harassment, and gender-based violence can happen to anyone regardless of race, class, age, appearance, gender identity, or sexual orientation. The University of Denver is committed to providing an environment free of discrimination on the basis of sex (gender), including sexual misconduct, sexual assault, relationship violence, and stalking, and other protected classes, such as race, color, national origin, age, and disability.

The Office of Equal Opportunity & Title IX (EOIX) is responsible for responding to and investigating reports and complaints of discrimination, harassment, and gender-based violence. In addition, all non-confidential University employees are considered “responsible employees” and required to report such incidents to EOIX. For more information, please visit the Office of Equal Opportunity & Title IX website at <https://www.du.edu/equalopportunity/>.

## **CENTER FOR ADVOCACY, PREVENTION, AND EMPOWERMENT (CAPE)**

[The Center for Advocacy, Prevention, and Empowerment](#) (CAPE) provides advocacy and support services to all student, staff, and faculty survivors of sexual assault, relationship violence, stalking, and sexual harassment. They also offer consultation and resources to people who are supporting a survivor. All services are confidential and free of charge. For assistance during business hours, call 303-871-3853. You can also email [cape@du.edu](mailto:cape@du.edu). For assistance after hours to speak to a mental health counselor on-call, please call 303-871-2205.

## **STUDENT ATHLETES**

If you are a student-athlete, you should inform me of any class days to be missed due to DU sponsored varsity athletic events in which you are participating. Please provide me with an absence policy form by the end of the first week of class. You will need to make up any missed lectures, assignments, and/or exams.

## **USE OF TECHNOLOGY IN THE CLASSROOM**

Access to the Internet can be a valuable aid to the classroom learning environment. You may be encouraged to use a laptop, smartphone, or other devices to explore concepts related to course discussions and in-class activities. Keep in mind, however, that these technologies can be distracting – not only for you but to others in the class. Please avoid the temptation of social media, texting, or other off-topic diversions. Please review Restriction of Audio or Visual Recordings below.

## **RESTRICTION OF AUDIO OR VISUAL RECORDING, REPRODUCTION, AND DISTRIBUTION OF CONTENT IN ONLINE COURSES**

At the University of Denver, we protect the intellectual property of all our faculty, and safeguard the privacy of all our students in online learning environments. To this end, students may not record, reproduce, screenshot, photograph, or distribute any video, audio, or visual content from their online courses. This restriction includes but is not limited to:

- Pre-recorded and live lectures
- Live discussions
- Discussion boards
- Simulations
- Posted course materials
- Faculty feedback forms
- Visual materials that accompany lectures/discussions, such as slides
- Virtual whiteboard notes/equations, etc.

As we engage in online learning as an academic community, it is imperative to be respectful of all. Keep in mind that if any student is identifiable in an online class recording, this may constitute a violation of the educational record protections provided under FERPA.

Students with disabilities who need to record classroom lectures or discussions must contact the Disability Services Program to register, request, and be approved for an accommodation. All students are advised that students may tape classroom activities for this purpose. Such recordings are to be used solely for individual or group study with other students enrolled in the class that quarter/semester. They may not be reproduced, shared in any way (including electronically or posting in any web environment) with those not in the class in that quarter.

Students who violate this policy will be reported to [The Office of Student Rights & Responsibilities](#) and may be subject to both legal sanctions for violations of copyright law and disciplinary action under *Student Rights & Responsibilities Policies*.

## ONLINE AND WEB-SUPPORTED CLASSES

It is your responsibility to procure reliable, readily-accessible Internet service in order to fulfill course expectations. I am under no obligation to accept late assignments or waive required tasks (e.g., discussion participation) due to lack of online access or malfunctioning computer hardware. Please consider identifying an alternative Internet source in case of technical problems. [Look here for a list of computer labs on the DU campus](#). Computer support is available from the [Information Technology \(IT\) Help Center](#).

## RESEARCH CENTER SERVICES

The University Libraries Research Center (<http://libraryhelp.du.edu>) answers research questions seven days a week by phone, email, in-person, chat/IM or text. One-on-one research consultations in the Anderson Academic Commons are also available on a drop-in basis or by appointment. Consultations help students at any stage of the research process, from refining a topic, to finding books and articles, to creating a bibliography. The Research Center can also assist students with finding images, audio recordings, and videos for course projects. Telephone and Zoom video consultations are also available by request for distance students. Ask a question

or make an appointment by calling 303-871-2905 or visiting <http://libraryhelp.du.edu>. Over 99% of the students who have visited the Research Center report they would recommend the Research Center to a friend or classmate.