SCIENCE OF CONTEMPORARY ISSUES 1 – COURSE SYLLABUS

University of Denver – CHEM 1001 – Autumn Quarter 2021

Professor: Emily Barter, Ph.D.
DU Office Location: Boettcher West 222
Office Hours (on Zoom): Thursdays (1:30pm – 3:15pm) & Fridays (10:00am – 11:15am)

- If you need to talk to me outside of class or office hours, please send me an email!

E-mail: Emily.Barter@du.edu

Teaching Assistant	E-Mail Address	Lab Sections
Tanden Hovey	Tanden.Hovey@du.edu	11 & 12 (Wednesday Afternoon & Evening)
Claire Jiang	Susiyan.Jiang@du.edu	09 & 15 (Tuesday & Thursday Evening)
Lena Kallweit	Lena.Kallweit@du.edu	07 & 13 (Tuesday & Thursday Morning)
Emma Oldani	Emily.Oldani@du.edu	04 & 06 (Monday Morning and Evening)
Liam Russell	Liam.Russell@du.edu	05 & 14 (Monday & Thursday Afternoon)
Desiree Sarmiento	DesireeJoyce.Sarmiento@du.edu	08 & 10 (Tues Afternoon & Wed Morning)

Welcome to CHEM 1001:

For many of you this is your first chemistry class, or even your first science class. Others of you may already know a lot about chemistry. Regardless of our backgrounds, we are all going to have a fun time together! Along the way, we are going to learn how our world works and where we see chemistry in our everyday lives. We will answer many "I wonder how...." questions this year, but more importantly you will learn how to ask and answer these questions independently! The skills you acquire in this course will help you make wiser choices – whether voting, buying a new product, explaining science to friends and family, or deciding how to get to school or work.

Quarter	CHEM 1001: Fall	CHEM 1002: Winter	CHEM 1003: Spring
Topics	• Sustainability • Air Pollution • The Ozone Layer • Climate Change • Fossil Fuels • Power Plants	• Purification of Drinking Water • Nuclear Power • Nuclear Weapons • Solar Power • Batteries • Alternative Energy Sources	• Plastics • Drugs • Nutrition • Chemical Components of Foods • Genetically Modified Organisms (GMOs)

Science of Contemporary Issues is a three-part, yearlong course sequence that fulfills the natural scientific inquiry common curriculum requirement. This course focuses on real-world applications of chemistry. I have worked to minimize the use of complex calculations in this course in favor of an emphasis on learning the other skills that chemists use to solve problems and understand the sub-microscopic world. After completing CHEM 1001, you will be familiar with the similarities and differences between the atoms, molecules, and subatomic particles that make up our world. You will also learn to draw Lewis structure cartoons of molecules, and identify the 3D shapes of molecules. Subsequent quarters (CHEM 1002 & 1003) will build upon the knowledge and skills that you acquire during this quarter. In other words, this is a year-long sequence because chemistry is a cumulative science. The work we do this quarter will provide the context that makes the 2nd and 3rd quarters of the course both approachable and interesting.

CANVAS COURSE WEBSITE: CHEM 1001 – FALL 2021

This is where you will go to get files for labs and homework, turn in warm-up assignments, take quizzes and exams, and see your grades. I will use the course Canvas page to post all course files and communicate with the class. If you haven't done so yet, please go to Canvas now and:

- Review the **"Getting Started"** Module in Canvas: https://canvas.du.edu/courses/125019/modules
  - Make sure you have all of the required course materials.
  - **Configure your notification settings** so that you are alerted when files, announcements, or grades are changed on the Canvas page
- Register your clicker subscription through the **"TurningPoint v8 Clicker Registration"** link in the **"Clicker Registration Module"** in Canvas. For proper Canvas integration, you must register your clicker subscription through the Module in Canvas, please **do not** skip this step.
  - See the course materials module for additional information on setting up your clicker.
- **Complete the 1st Warm-Up Assignment:** https://canvas.du.edu/courses/125019/quizzes/137878

LECTURE SCHEDULE			
Section	**Day and Time**	**Time**	**Location**
01	Mon and Weds	12 noon – 1:30 pm	Boettcher Center 101
02	Tues and Thurs	10:00 am – 11:30 am	Sturm 248 (Davis Auditorium)

LABORATORY SCHEDULE				
Section	**Day**	**Time**	**TA**	**Location**
04	Mon	9:00 am – 11:50 am	Emma Oldani	Boettcher West 015
05	Mon	2:00 pm – 4:50 pm	Liam Russell	Boettcher West 015
06	Mon	6:00 pm – 8:50 pm	Emma Oldani	Boettcher West 015
07	Tues	9:00 am – 11:50 am	Lena Kallweit	Boettcher West 015
08	Tues	2:00 pm – 4:50 pm	Desiree Sarmiento	Boettcher West 015
09	Tues	6:00 pm – 8:50 pm	Claire Jiang	Boettcher West 015
10	Weds	9:00 am – 11:50 am	Desiree Sarmiento	Boettcher West 015
11	Weds	2:00 pm – 4:50 pm	Tanden Hovey	Boettcher West 015
12	Weds	6:00 pm – 8:50 pm	Tanden Hovey	Boettcher West 015
13	Thurs	9:00 am – 11:50 am	Lena Kallweit	Boettcher West 015
14	Thurs	2:00 pm – 4:50 pm	Liam Russell	Boettcher West 015
15	Thurs	6:00 pm – 8:50 pm	Claire Jiang	Boettcher West 015

THE SCIENCE AND ENGINEERING CENTER (SEC) - http://portfolio.du.edu/sec

The TA's office hour schedules and locations are posted at the bottom of our Canvas course home page. The TAs have a mix of zoom and in-person office hours available. The SEC is a collaborative space that is staffed by undergraduate and graduate TAs who are trained to assist students with first and second year chemistry, physics, and engineering courses. Their goal is to help students grow as problem solvers by assisting with homework, lab reports, and exam preparations. The SEC is not a one-on-one tutoring center, it is a place where students can get guidance from TAs as well as their peers, and where students can work together to learn and create community. **The SEC is free and open to all DU students.** The SEC is physically located in the Northwest corner of the first floor of the Anderson Academic Commons.

MY PLEDGE TO YOU

I was fortunate to have amazing professors and classmates during my time in both college and graduate school. My goal is to provide all of you with that same experience. I want this class to be a valuable, meaningful, and memorable experience for all of you. Our classroom is going to be one of inquiry and inclusiveness; I want everyone to feel welcome to ask any questions that may have. If you have a question it is likely that someone else in class has the same question, so go ahead and ask it! I will do everything I can to make this the best class it can be. If you have comments, you can submit them to me at any time by sending me an email. I will do my best to incorporate your feedback into how I teach the class. I am thrilled to have each of you in this class and am looking forward to a great quarter.

TECHNOLOGY IN THE CLASSROOM

We will be utilizing technology in the classroom and **you will need to bring your laptop with you to all classes**. However, please do not let your technology distract you or those around you. While in the classroom, please do not use your laptop or phone for non-class activities. Laptops and phones can be distracting – not only for you, but to others in the class. Please avoid the temptation of Instagram, online shopping, texting, or other off-topic diversions.

In my experience, distracting technology has an overall negative impact on student learning in the classroom. I recommend taking notes by hand and staying engaged.

STUDENT LEARNING OUTCOMES (SLOs)

Upon completion of this one-year course sequence, students should become proficient in these areas and/or develop these skills:

Scientific Inquiry – Natural and Physical World SLOs:

1. Apply knowledge of scientific practice to evaluate evidence for scientific claims.
2. Demonstrate an understanding of science as an iterative process of knowledge generation with inherent strengths and limitations.
3. Demonstrate skills for using and interpreting qualitative and quantitative information.

Course-Specific SLOs:

4. Use graphs to display numerical data and interpret graphical data.
5. When presented with a science-related question, find relevant information to help answer the question.
6. Evaluate sources of information – especially information gleaned from the Internet – to determine their usefulness.
7. Use the skills described above to evaluate scientific claims in the news; learn to identify bogus science and overblown claims.
8. Have the skills and knowledge to make informed choices that impact your health, the environment, and community well-being; view science as a source of power and not fear.
9. Always ask why. Become empowered to take time to do any necessary research to make your own informed decisions; building both confidence and critical thinking skills.

CHEM 1001 Lecture Schedule

Week	Sun	Monday	Tuesday	Wednesday	Thursday	Friday	Sat
1		**September 13**	14	15	16	17	18
		Lecture 1: Warm-Up #1, Clickers, Lab #1 Information, Canvas Reading Assignment & Figure 4.34		**Lecture 2:** Ch 2.1 – 2.4 & 2.8 – 2.9		Syllabus Quiz due	
2	19	20	21	22	23	24	25
		Lecture 3: Ch 2.10, 2.5 – 2.6, Canvas Reading Assignment Part #1 and Part #2		**Lecture 4:** Canvas Reading Assignment **Quiz #1**			
3	26	27	28	29	30	**October 1**	2
		Lecture 5: Ch 2.13 – 2.15 and Canvas Reading Assignment		**L6:** Ch 3.6 – 3.8 (skip page 93 below Your Turn 3.21), Canvas Reading Assignment **Quiz #2**		Homework #1 due	
4	3	4	5	6	7	8	9
		Exam 1 Chapters 1, Chapter 2, and Canvas Reading Assignments		**Lecture 7:** Ch 3.1 – 3.2, 3.4 – 3.5, and Canvas Reading Assignment			
5	10	11	12	13	14	15	16
		Lecture 8: Ch 3.9 – 3.10		**Lecture 9:** Ch 3.11 **Quiz #3**		Homework #2 due	
6	17	18	19	20	21	22	23
		Lecture 10: Ch 4.5 – 4.7, 4.9, & 5.1		**Lecture 11:** Ch 4.8, Figure 4.2 on Page 115, and 4.2 – 4.4 **Quiz #4**		Homework #3 due	
7	24	25	26	27	28	29	30
		Lecture 12: Ch 4.10 – 4.12		**Lecture 13:** Canvas Reading Assignment, Lab #8 Information **Quiz #5**		Homework #4 due	
8	31	**November 1**	2	3	4	5	6
		Exam 2 Chapter 3, Chapter 4, and Canvas Reading Assignments		**Lecture 14:** Page 219, Ch 6.1 – 6.4, Page 248, and Ch. 6.6 – 6.12			
9	7	8	9	10	11	12	13
		Lecture 15: Ch 6.5, and 6.13 – 6.15 **Quiz #6**		**Lecture 16:** 6.16 – 6.17 **(HW #5 due at 5pm, Weds 11/10)**			
10	14	15	16	17	18	19	20
		Lecture 17: Content Review **Quiz #7** **(HW #6 due at 5pm, Tues 11/16)**		****Exam #3** Section 1 Ch 2 – 4 and 6**	****Exam #3** Section 2 Ch 2 – 4 and 6**		

*** **Exam 3**:** If something unexpected arises during this unique quarter (or if we move fully online) that causes us to lose a day in our lecture schedules, then we will move to our official final exam dates: **Section 1** – Saturday, November 20th, **Section 2** – Monday, November 22nd*

CHEM 1001 Laboratory Schedule

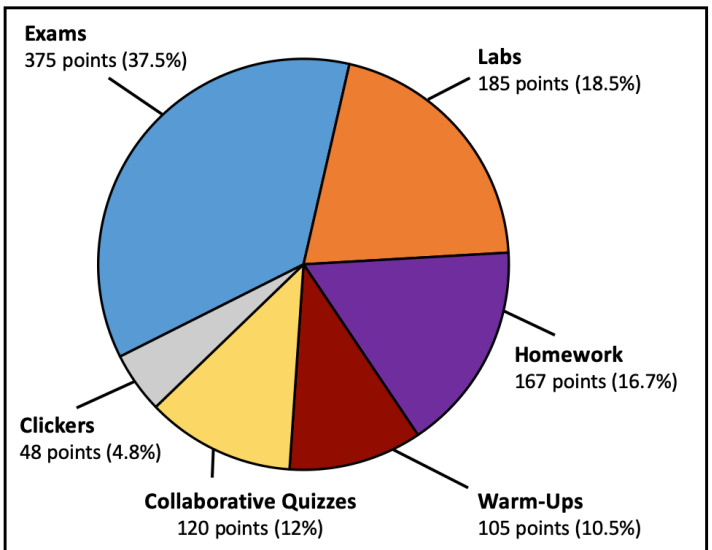
Week	Sun	Monday	Tuesday	Wednesday	Thursday	Friday	Sat
1		September 13	14	15	16	17	18
		First Week of Classes – No Labs This Week					
2	19	20	21	22	23	24	25
		Lab 1: Intro to Information Literacy AND Graphing Data with MS Excel Meet in BW015 for this and all subsequent labs **You will need to bring your laptop for this laboratory**					
3	26	27	28	29	30	October 1	2
		Lab 2: The Air We Breathe					
4	3	4	5	6	7	8	9
		Lab 3: Title TBD					
5	10	11	12	13	14	15	16
		Lab 4: Title TBD					
6	17	18	19	20	21	22	23
		Lab 5: Exploring Molecular Shapes					
7	24	25	26	27	28	29	30
		Lab 6: Rock and Mole The Lab 8 Research Project assignment will be handed out and discussed in lab this week					
8	31	November 1	2	3	4	5	6
		Lab 7: TBD **You will need to bring your laptop for this laboratory**					
9	7	8	9	10	11	12	13
		Lab 8: Research Project Presentations ** This laboratory may not be dropped **					
10	14	15	16	17	18	19	20
		THERE ARE NOT ANY LABS THIS WEEK! (Study For Exams)					

Note: *Some of the laboratories are listed as "Title TBD", as I want to have the flexibility to be able to adapt and write new laboratory content as we progress through this unique quarter.*

ASSIGNMENTS & GRADING

Assignment Category	Points	% of Grade	Additional Information
Exams	375	37.5%	3 exams × 125 points each
Laboratory Assignments	185	18.5%	7 labs × 25 points each Lowest 25 point lab score dropped 1 lab (research project) × 35 points
Homework	167	16.7%	6 HW assignments × 25 points each 1 syllabus quiz × 17 points
Warm-Up Questions	105	10.5%	Full credit for participation 7 points per lecture × 17 lectures Lowest 2 scores dropped
Collaborative Quizzes	120	12%	7 quizzes × 15 points each 1 Introduction × 15 points
In-Class Clicker Questions	48	4.8%	Full credit for participation 4 points per lecture × 17 lectures Lowest 5 scores dropped
TOTALS	**1000**	**100**	**–**

Letter Grade	Points
A	1000 - 930
A−	929 - 900
B+	899 - 870
B	869 - 830
B−	829 - 800
C+	799 - 770
C	769 - 730
C−	729 - 700
D+	699 - 670
D	669 - 630
D−	629 - 600
F	599 or fewer



Point Breakdown by Category

- Final grades will be assigned based on the point scale shown above. The types of assignments and assignment-specific grading procedures will be discussed during Lecture #1. If you have questions, please talk with Dr. Barter.
- When your lowest scores for warm-ups, laboratory, and clickers are dropped, they will appear gray in the Canvas grade book
- When calculating your course grade, pay attention to the number of points in the Canvas grade book, **NOT** the letter grade calculated by Canvas.

DESCRIPTION OF ASSIGNMENT CATEGORIES

Exams

- Composed of multiple-choice, fill in the blank, and long-answer questions.
- May use a *non-phone* calculator for exams.
- Make-up or late exams are not be available. Instead, if you are not present for Exam #1 or Exam #2, that exam will count for zero points and Exam #3 will count for 250 points instead of 125 points. You may skip only one (not both) of the "midterm" exams.
    - I will NOT require documentation to use this exam policy, but please communicate with me so that I do not worry about you if you are not present for an exam.
- **Please check the exam schedules now and make sure that you do not have any scheduling conflicts.**

Labs

- Unless otherwise noted, labs will always held in Boettcher West 015.
- Lab points will be based on your preparedness, safety and courtesy in lab, and performance on lab assignments.
    - What the laboratory assignments look like will change throughout the quarter.
- **Laboratory safety:** All students must properly wear safety goggles and face masks at all times in the laboratory. NSM requires face masks to be worn in the laboratory, regardless of the campus COVID alert level. You must also wear lab appropriate clothing: shoes must cover the entire foot, no bare legs, and no bare shoulders or midriffs. If you do not follow these guidelines, you will be asked to leave and given a 0 for that assignment.
- **We take academic integrity very seriously.** There is no reason students should turn in identical work. Outside of any shared collected data, all work turned in must be your own and individual of your lab partner.
- **Pre-lab assignments** are due at the beginning of the laboratory and should be handed to your TA as you enter the laboratory. These assignments will help you to prepare and engage during lab.
- **Laboratory worksheets (post-labs)** are due at the beginning of your next lab period. To complete worksheets/post-labs you will analyze your data, reflect on what you learned, and/or perform calculations.
- **Lab tardiness**: If you are late to lab by more than 10 minutes, you will miss the weekly safety lecture, and *you will not be allowed to perform the experiment.*
- **Lab attendance**: You should plan to attend all of your labs, as scheduled. To eliminate the need to reschedule labs, navigate the required contact tracing, and manage COVID protocols, I will be dropping your lowest laboratory score for Laboratories #1 - #7. Your Laboratory #8 score will not be dropped.
    - This policy allows any student to have one missed laboratory without any grade penalty or drop their lowest laboratory score of the quarter.

The labs are a required component of the class – you will automatically fail the class if you do not complete two or more labs. Please do not let this happen.

Make sure that you understand this policy. It is a chemistry department policy that we must follow. **Please avoid missing labs!**

Homework (due by 5:00 pm on due date)

- Composed of assignments that will be posted through Canvas.
- Will be turned-in through Canvas, as 1 PDF file.
- Graded on correctness with some partial credit.

Warm-Ups

- Before every lecture I will assign three to five questions.
- These are graded based on a thoughtful, complete effort, not on correctness. Students typically earn warm-up scores of 100%, as long as they remember to submit the assignments on-time. The two bullet points below give an idea of how the grading works:
    - Answers that use evidence to bolster their argument and show an effort and understanding of the reading assignment will receive full credit.
    - Answers that rely on direct quotes from the text, are copied directly from websites, are composed of sentence fragments, or are have questions left blank or incomplete will receive a score of zero.
- Warm-ups are due **by** (not at) 7:00 am the morning before every lecture. (Please manage your time so that you are not rushing every morning before lecture to get these done.)
- Since warm-ups will be used during class, they **may not be turned in late.**
- Your lowest 2 warm-up scores will be dropped and will not be counted in your final grade.
- Some warm-ups will be marked "CER" and have additional requirements for full credit. The "Claims Evidence Reasoning (CER)" Page in Canvas contains more information .

Collaborative Quizzes

- These will be similar to other in-class quizzes that you have taken, with one exception: you will have time to compare answers and collaborate with classmates (and Dr. Barter!) and revise your answers based on your discussions.
- Study for these quizzes! They will give you valuable practice with exam-style questions.

Clickers

- I will ask multiple-choice questions in class and you will answer with your digital clicker app. You will feel like you are playing a game and will have more fun. More seriously, clickers help me notice if/when the class is struggling with a difficult concept.
- Grades are based on participation, not correctness.
- To receive clicker points you need to **register your subscription through Canvas:**
    - Described on Page #2 of the syllabus
    - You only need to complete the registration once.
- I will post clicker grades in the grade book at the end of each week throughout the quarter. Check the grade book to make sure that you are getting credit.

LATE ASSIGNMENTS

Homework assignments are the *only* assignments in CHEM 1001 that may be turned in late for partial credit. Late homework penalties are assessed as follows:

Late by 1 week or less	Late by more than 1 week
Score decreased by 50%	Automatic score of zero

ABSENCES

Excused absences – If you are missing class because of an emergency, illness, COVID requirement, or a religious activity, communicate with me ASAP. I know this is a challenging situation and I will do my best to help everyone with excused absences or emergencies. Please also recognize the immense challenges for myself and the TAs as we navigate this, together – as a community.

Make-up assignments – If your absence is excused or planned, make-up assignments and/or due date extensions can be arranged. If you do not provide at least 24 hours of advanced notice, we cannot guarantee that a make-up assignment will be available.

If you already know that you will be absent for any required course activities during the quarter, tell us about it as far in advance as possible, preferably by the end of the first week of classes. You still must complete all of the course assignments, but may be able to do so at a different time. Speak with Dr. Barter *before* your absence to work out the details. If you anticipate missing multiple days, schedule a private meeting with Dr. Barter to discuss your needs.

ACADEMIC HONESTY

I encourage you to do your CHEM 1001 coursework in groups. Some of your best learning can happen when you explain what you know to someone who doesn't understand. ***However, all work that you turn in must be your own.*** If two identical assignments are turned in, both students will receive grades of zero. The exams in CHEM 1001 count for about one third of your grade and must be accomplished individually, so you need to be able to perform independently.

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 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

For more information, consult these resources:

DU Honor Code Statement: http://www.du.edu/studentlife/studentconduct/index.html
DU Policies for Student Conduct: http://www.du.edu/studentlife/studentconduct/policies/

INCLUSIVE LEARNING ENVIRONMENTS

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

DISABILITY SERVICES PROGRAM

Any student who feels that they may need an accommodation based on the impact of a disability should contact the Disability Services Program (DSP) in a timely manner to coordinate reasonable accommodations. Information is available online at http://www.du.edu/disability/dsp; see the *Handbook for Students with Disabilities*. DSP will provide me with an official notice of accommodations so I can provide support. I cannot provide accommodations without this step.

LEARNING EFFECTIVENESS PROGRAM

The Learning Effectiveness Program (LEP) provides academic support services beyond basic academic accommodations. http://www.du.edu/studentlife/learningeffectiveness

HEALTH AND COUNSELING CENTER

The Health & Counseling Center (HCC) provides many medical and mental health services. http://www.du.edu/health-and-counseling-center/

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. Computer help is available from University Technology Support (UTS) Help Center.

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, written, or visual content from their online courses.

This restriction includes but is not limited to:

- Pre-recorded and live lectures or laboratories
- Live discussions
- Discussion boards
- Simulations
- Posted course materials
    - *Students who post to **any** web environment (such as Chegg or Course Hero) will be reported to the Office of Student Rights & Responsibilities.*
- 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 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.*