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# SCIENCE OF CONTEMPORARY ISSUES 3 – COURSE SYLLABUS

University of Denver – CHEM 1003 – Spring Quarter 2023

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**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](mailto:Emily.Barter@du.edu)

Teaching Assistant	E-Mail Address	Laboratory Sections
Zac Gabani	Zachariah.Gabani@du.edu	05 & 14 (Monday and Thursday Evening)
Autumn Giger	Autumn.Giger@du.edu	10 & 13 (Wednesday Afternoon and Evening)
Liesl Jensen	Liesl.Jensen@du.edu	07 & 08 (Tuesday Afternoon and Evening)
Braden Rue	Braden.Rue@du.edu	04 & 12 (Monday and Thursday Afternoon)
Liam Russell	Liam.Russell@du.edu	06 & 09 (Tuesday and Wednesday Morning)

## Welcome to CHEM 1003:

This course is the 3<sup>rd</sup> (and final) part of a yearlong course sequence that fulfills the natural scientific inquiry common curriculum requirement. In this quarter we will use the skills that you developed in CHEM 1001 and 1002 to explore the real-world chemistry of large molecules. This might not sound exciting yet, but it will be! We will learn about the chemicals that compose plastics, drugs, foods, and even your body. The first day of CHEM 1001, I let you all know how excited I was to get to the content in this quarter, it is going to be interesting and a lot of fun!

Quarter	CHEM 1001: Fall	CHEM 1002: Winter	CHEM 1003: Spring
Topics	<ul style="list-style-type: none"><li>• Sustainability</li><li>• Air Pollution</li><li>• The Ozone Layer</li><li>• Climate Change</li><li>• Fossil Fuels</li><li>• Power Plants</li></ul>	<ul style="list-style-type: none"><li>• Purification of Drinking Water</li><li>• Nuclear Power</li><li>• Nuclear Weapons</li><li>• Solar Power</li><li>• Batteries</li><li>• Alternative Sources of Energy</li></ul>	<ul style="list-style-type: none"><li>• Plastics</li><li>• Drugs</li><li>• Nutrition</li><li>• Chemical Components of Foods</li><li>• Genetically Modified Organisms (GMOs)</li><li>• DNA, RNA, Proteins</li></ul>

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.

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## TA's office hour schedule for Spring Quarter:

- Please see the bottom of the Homepage on our Canvas Course Website for TA schedules.
- The TAs have a mix of in-person (SEC Center) and online (Zoom Room) office hours.

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## CANVAS COURSE WEBSITE: CHEM 1003 – Spring 2023

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

- Review the “**Getting Started**” Module in Canvas: <https://canvas.du.edu/courses/154266/modules>
  - Make sure you have all of the required course materials.
  - **Configure your notification settings** so that you are alerted when files, announcements, assignment comments, 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 through the Module in Canvas, please do not skip this step. If you were registered last quarter, you do not need to do another registration. You only need to register your clicker if you are new to CHEM 1003 or have a new subscription.**
  - See the course materials module for additional information on setting up your clicker.
- **Complete the first Warm-Up Assignment:** <https://canvas.du.edu/courses/154266/quizzes/184432>

LECTURE SCHEDULE			
Section	Day and Time	Time	Location
01	Mon and Weds	12 noon – 1:30 pm	Sturm 281
02	Tues and Thurs	10:00 am – 11:30 am	Sturm 281

***\*\*If we have a snow day we will be on Zoom & Zoom lecture links will be posted to our Canvas Home Page.***

LABORATORY SCHEDULE				
Section	Day	Time	TA	Locations
04	Mon	2:00 pm – 4:50 pm	Braden Rue	All labs will meet in Boettcher West 015.  Any changes to lab locations will be communicated in the Friday lab announcements.
05	Mon	6:00 pm – 8:50 pm	Zac Gabani	
06	Tues	9:00 am – 11:50 am	Liam Russell	
07	Tues	2:00 pm – 4:50 pm	Liesl Jensen	
08	Tues	6:00 pm – 8:50 pm	Liesl Jensen	
09	Weds	9:00 am – 11:50 am	Liam Russell	
10	Weds	2:00 pm – 4:50 pm	Autumn Giger	
13	Weds	6:00 pm – 8:50 pm	Autumn Giger	
12	Thurs	2:00 pm – 4:50 pm	Braden Rue	
14	Thurs	6:00 pm – 8:50 pm	Zac Gabani	

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

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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.

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## MY PLEDGE TO YOU

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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.

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## TECHNOLOGY IN THE CLASSROOM

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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 any 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 to help stay engaged.**

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## STUDENT LEARNING OUTCOMES (SLOs)

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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.

<b>CHEM 1003 Lecture Schedule</b>							
Week	Sun	Monday	Tuesday	Wednesday	Thursday	Friday	Sat
<b>1</b>	Mar 26	27	28	29	30	31	Apr 1
		Lecture 1: Ch 9.0 (Page 357) – 9.3		Lecture 2: Ch 9.4 – 9.5 Laboratory Information		Syllabus Quiz due 5:00pm	
<b>2</b>	2	3	4	5	6	7	8
		Lecture 3: Ch 9.6 – 9.7 and 12.4		Lecture 4: Ch 9.8 – 9.11		Homework #1 accepted until <b>Monday @ 5:00pm</b> No late homework	
<b>3</b>	9	10	11	12	13	14	15
	HW1 ok Monday 5:00pm	Lecture 5: Finish Chapter 9 and Review for Exam #1 Collaborative Quiz #1		Exam 1 Chapter 9			
<b>4</b>	16	17	18	19	20	21	22
		Lecture 6: Canvas Reading Assignment, Pages 483 – 484, and Chapter 12.3		Lecture 7: Canvas Reading Assignment In-Class Activity #1			
<b>5</b>	23	24	25	26	27	28	29
		Lecture 8: Canvas Reading Assignment In-Class Activity #2		Lecture 9: Canvas Reading Assignment In-Class Activity #3		Homework #2 due 5:00pm	
<b>6</b>	30	May 1	2	3	4	5	6
		Lecture 10: Ch 11.1 – 11.5		Lecture 11: Ch 11.6 – 11.9 In-Class Activity #4			
<b>7</b>	7	8	9	10	11	12	13
		Lecture 12: Ch 11.10 – 11.13		Lecture 13: Exam #2 Review Collaborative Quiz #2		Homework #3 due 5:00pm	
<b>8</b>	14	15	16	17	18	19	20
		Exam 2 Chapters 10 and 11		Lecture 14: Canvas Reading Assignment and 13.3, 13.6, 13.8 (DNA)			
<b>9</b>	21	22	23	24	25	26	27
		Lecture 15: Ch 13.4 – 13.5 (Protein Structure)		Lecture 16: Finish Content In-Class Activity #5 Collaborative (or Take-Home) Quiz #3		Homework #4 due 5:00 pm	
<b>10</b>	28	29	30	31	June 1	2	3
		Memorial Day No Classes for Section 1 or 2		**Exam #3** Cumulative + Chapters 13.3 – 13.8 **Warm-Up** = Discussion Board			

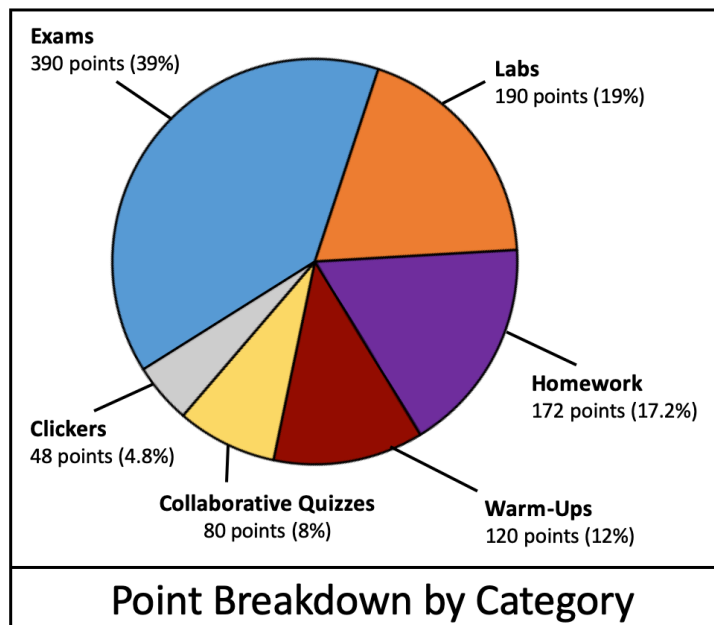
**\*\* Exam 3\*\*:** If something unexpected arises during the quarter (or if we move fully online) that causes us to lose a day in our lecture schedule, then we will move our Exam #3 to our official final exam dates: **Section #1 – Monday, June 5th and Section #2 – Tuesday, June 6th.**

<b>CHEM 1003 Lab Schedule</b>							
Week	Sun	Monday	Tuesday	Wednesday	Thursday	Friday	Sat
<b>1</b>	Mar 26	27	28	29	30	31	Apr 1
		<b>First Week of Classes – No Labs This Week</b>					
<b>2</b>	2	3	4	5	6	7	8
		<b>Lab 1: Polymers!</b> Meet in Boettcher West 015 and remember to bring your safety goggles!					
<b>3</b>	9	10	11	12	13	14	15
		<b>Lab 2: Synthesis of Aspirin</b>					
<b>4</b>	16	17	18	19	20	21	22
		<b>Lab 3: Analysis of Aspirin and Other Drugs</b>					
<b>5</b>	23	24	25	26	27	28	29
		<b>Lab 4: Video Project Work and Update TA on Progress</b>					
<b>6</b>	30	May 1	2	3	4	5	6
		<b>Lab 5: Extracting Fats From Foods</b>					
<b>7</b>	7	8	9	10	11	12	13
		<b>Lab 6: Fermentation by Yeast</b>					
<b>8</b>	14	15	16	17	18	19	20
		<b>Lab 7: The Lactase Enzyme</b>					
<b>9</b>	21	22	23	24	25	26	27
	Video Projects Due by 5:00 pm	<b>Lab 8: CHEM 1003 Video Project and Screening</b>					
<b>10</b>	28	29	30	31	June 1	2	3
		Memorial Day No Labs	<b>NO LABS FOR Tuesday, Wednesday, or Thursday Students: Study for Exams!</b>				
<b>11</b>	4	5	6	7	8	9	
		<b>No Labs – Finals Week</b>					

## ASSIGNMENTS & GRADING

Assignment Category	Points	% of Grade	Additional Info
Exams	390	39%	3 exams × 130 points each
Laboratory Assignments	125	12.5%	6 Labs × 25 points each Lowest 25 point lab score dropped
Video Project – Part of Labs (Laboratory Project)	65	6.5%	See the <a href="#">Canvas Video Project Page</a> for more information and due dates
Homework	172	17.2%	4 HW assignments × 40 points each 1 Syllabus quiz (online) × 12 points
Warm-Up Questions	120	12%	Full credit for meaningful participation 8 points per lecture × 16 lectures 8 points × 1 discussion board Lowest 2 scores dropped
In-Class Assignments & Collaborative Quizzes	80	8%	8 Assignments – point assignments differ by activity, totaling 80 points
In-Class Clicker Questions	48	4.8%	Full credit for participation 4 points per lecture × 16 lectures Lowest 4 scores dropped
<b>TOTALS</b>	<b>1000</b>	<b>100</b>	–

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 fewer



- 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 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.

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## DESCRIPTION OF ASSIGNMENT CATEGORIES

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### Exams

- Composed of multiple-choice, fill in the blank, and long-answer questions.
- May use a non-phone/non-transmitting calculator for exams.
- Make-up or late exams are not 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 260 points instead of 130 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.
  - **Note: If we have to have an online exam, there is *not* an option to skip the exam.**
- **Please check the exam schedules now and make sure that you do not have any scheduling conflicts. Review the Exam #3 contingency policy, in lecture schedule!!**

### 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 at all times in the laboratory. NSM encourages 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. Pre-labs help you to prepare & engage during lab.
- **Lab worksheets (post-lab)** are due at the start of the next lab. To complete worksheets/post-labs you will analyze data, reflect on what you learned, and/or perform calculations.
- **Lab tardiness:** If you are late to an in-person lab by more than 10 minutes, or an online lab by 5 minutes, you will miss the weekly introduction and/or 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 any unexpected illness or emergencies, and manage any required COVID protocols, I will be dropping your lowest **25 point** lab score.
  - This policy allows any student to have one missed laboratory without any grade penalty or drop their lowest 25 point 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. <b>Please avoid missing labs!</b>
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## 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.
- Students are responsible for uploading their correct file and checking it for submission.
- TAs provide annotated feedback/corrections to your uploaded assignment in Canvas.

**Homework assignments** are the *only* assignments in CHEM 1003 that may be turned in late, for partial credit. Homework is allowed to be turned in late until **Monday at 5:00pm** (except for Homework #1, which does not have a late date option). Late penalties are assessed as follows:

Late between Friday (5:00pm) and Monday (5:00pm)	Turned in after Monday at 5:00pm
Score decreased by 50%	Automatic score of zero

## 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 & In-Class Assignments

- 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. Collaborative Quiz #3 may become a take-home quiz, depending on our pacing this quarter.
- 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, you only need to complete the registration once.
- I will post clicker grades in the grade book throughout the quarter. Check the grade book to make sure that you are getting credit.



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## ABSENCES

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**Excused absences** – If you are missing class because of an emergency, illness, COVID protocol 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 continue to navigate COVID, 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.

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## ACADEMIC HONESTY

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I encourage you to do your CHEM 1003 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 1003 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/>

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## INCLUSIVE LEARNING ENVIRONMENTS

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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.

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## DISABILITY SERVICES PROGRAM

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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. DSP will provide me with an official notice of accommodations so I can provide support. I cannot provide accommodations without this step. Information is available online at <https://studentaffairs.du.edu/disability-services-program>.

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## LEARNING EFFECTIVENESS PROGRAM

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

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## HEALTH AND COUNSELING CENTER

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

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## ONLINE AND WEB-SUPPORTED CLASSES

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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](#).

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

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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, including homework assignments, worksheets, or warm-ups
  - *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.

**Any student who violates 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*.**