
SCIENCE OF CONTEMPORARY ISSUES 2 – COURSE SYLLABUS

University of Denver – CHEM 1002 – Winter Quarter 2022

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	Laboratory Sections
Tanden Hovey	Tanden.Hovey@du.edu	10 & 11 (Wednesday Afternoon and Evening)
Claire Jiang	Susiyang.Jiang@du.edu	08 & 14 (Tuesday and Thursday Evening)
Lena Kallweit	Lena.Kallweit@du.edu	06 & 07 (Tuesday Morning and Afternoon)
Emma Oldani	Emily.Oldani@du.edu	04 & 05 (Monday Afternoon and Evening)
Liam Russell	Liam.Russell@du.edu	09 & 12 (Wednesday and Thursday Morning)
Alex Volkova	Alex.Volkova@du.edu	13 (Thursday Afternoon)

Welcome to CHEM 1002:

This course is the 2nd part of a three-part, yearlong course sequence that fulfills the natural scientific inquiry common curriculum requirement. This quarter we will use the skills developed in CHEM 1001 to explore the real-world chemistry of water, nuclear power, nuclear weapons, electrical devices, renewable power plants, and the effect of carbon dioxide on oceans. The skills from CHEM 1001 and CHEM 1002 will prepare you to learn about the large and sometimes complicated molecules present in plastics, drugs, foods, and your own body during the third quarter of this course (CHEM 1003). It is going to be interesting and a lot of fun! 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	<ul style="list-style-type: none">• Sustainability• Air Pollution• The Ozone Layer• Climate Change• Fossil Fuels• Power Plants	<ul style="list-style-type: none">• Purification of Drinking Water• Nuclear Power• Nuclear Weapons• Solar Power• Batteries• Alternative Energy Sources	<ul style="list-style-type: none">• 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. This and next quarter (CHEM 1002 & 1003) will build upon the knowledge and skills that you acquired during Fall 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 3rd quarter of the course both approachable & interesting.

CANVAS COURSE WEBSITE: CHEM 1002 – WINTER 2022

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/133006/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 through the Module in Canvas, 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 1002 or have purchased a new clicker.***
- See the course materials module for additional information on setting up your clicker.
- **Complete the 1st Warm-Up Assignment:** <https://canvas.du.edu/courses/133006/quizzes/149816>

LECTURE SCHEDULE			
Section	Day and Time	Time	Location
01	Mon and Weds	12 noon – 1:30 pm	Boettcher Center 101 or Zoom**
02	Tues and Thurs	10:00 am – 11:30 am	Boettcher Center 101 or Zoom**

****When online we will be on Zoom. For Zoom Lecture Links – Please see our Canvas Home Page**

LABORATORY SCHEDULE				
Section	Day	Time	TA	Locations
04	Mon	2:00 pm – 4:50 pm	Emma Oldani	When fully online, labs will meet in your TA's zoom room (see the bottom of our Canvas Home Page). When we are meeting in-person, labs will meet in Boettcher West 015. Weekly lab locations will be communicated in the Friday lab announcements.
05	Mon	6:00 pm – 8:50 pm	Emma Oldani	
06	Tues	9:00 am – 11:50 am	Lena Kallweit	
07	Tues	2:00 pm – 4:50 pm	Lena Kallweit	
08	Tues	6:00 pm – 8:50 pm	Claire Jiang	
09	Weds	9:00 am – 11:50 am	Liam Russell	
10	Weds	2:00 pm – 4:50 pm	Tanden Hovey	
11	Weds	6:00 pm – 8:50 pm	Tanden Hovey	
12	Thurs	9:00 am – 11:50 am	Liam Russell	
13	Thurs	2:00 pm – 4:50 pm	Alex Volkova	
14	Thurs	6:00 pm – 8:50 pm	Claire Jiang	

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

When in-person, 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.

When online, our entire course will be scheduled through technology. Please plan to attend our lectures, live via Zoom, as scheduled. I ask that everyone does their best to stay engaged and active in zoom lectures. I plan to post the zoom recordings to Canvas after our synchronous classes. I anticipate we will have technology challenges at some point in the quarter and we will adapt as needed. We will work through this and continue to learn and challenge ourselves.

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 1002 Lecture Schedule

Week	Sun	Monday	Tuesday	Wednesday	Thursday	Friday	Sat
1		January 3	4	5	6	7	8
		Lecture 1: <u>Ch 5.0 – 5.2</u>		Lecture 2: <u>Ch 5.3 – 5.6</u> Lab 1 Information		Syllabus Quiz due	
2	9	10	11	12	13	14	15
		Lecture 3: <u>Canvas Reading Assignment</u> Quiz #1		Lecture 4: <u>Ch 5.12 – 5.13</u> and <u>Canvas Reading Assignment</u>		Homework #1 due	
3	16	17	18	19	20	21	22
		No Classes – MLK Holiday		Lecture 5: <u>Lecture 1 – 4 Wrap-Up</u> (Planned Catch-Up Day) Quiz #2		Homework #2 due	
4	23	24	25	26	27	28	29
		Lecture 6: <u>Ch 5.7 – 5.8</u> <u>Review for Exam 1</u>		Exam 1 Chapters 5.0 – 5.6, 5.12 – 5.13 and <u>Canvas Reading Assignments</u>			
5	30	31	February 1	2	3	4	5
		Lecture 7: <u>Ch 5.9 – 5.11</u>		Lecture 8: <u>Canvas Reading Assignment and Ch 11.12</u>		Big Homework #3 & #4 due	
6	6	7	8	9	10	11	12
		Lecture 9: <u>Ch 7.7 and 7.1</u> (Please read in that order) Quiz #3		Lecture 10: <u>Ch 7.2 – 7.3</u> Quiz #4		Homework #5 due	
7	13	14	15	16	17	18	19
		Lecture 11: <u>Ch 7.4 – 7.6</u> and <u>Canvas Reading Assignment</u> Quiz #5		Lecture 12: Nuclear Weapons and Treaty: Articles in <u>Canvas Reading Assignment</u>		Homework #6 due	
8	20	21	22	23	24	25	26
		Lecture 13: Finish Content & Review for Exam 2 Lab 8 Information and Quiz #6		Exam 2 Chapters 5.7 – 5.13, 7.1 – 7.7, 11.2 and <u>Canvas Reading Assignments</u>			
9	27	28	March 1	2	3	4	5
		Lecture 14: <u>Ch 8.0 – 8.5</u>		Lecture 15: <u>Ch 8.6 and 8.8 – 8.11</u> Quiz #7		Homework #7 due	
10	6	7	8	9	10	11	12
		Lecture 16: <u>Ch 7.8 – 7.10</u>		**Exam #3** Cumulative + Chapters 8.0 – 8.6, 8.8 – 8.11, and 7.8 – 7.10 **Warm-Up** = Discussion Board			

**** Exam 3**:** If something else unexpected arises during this unique quarter (or if we move fully online for the quarter) that causes us to lose a day in our lecture schedules, then we will move our Exam #3 to the following dates: **Section 1** – Monday, March 14th, **Section 2** – Tuesday, March 15th

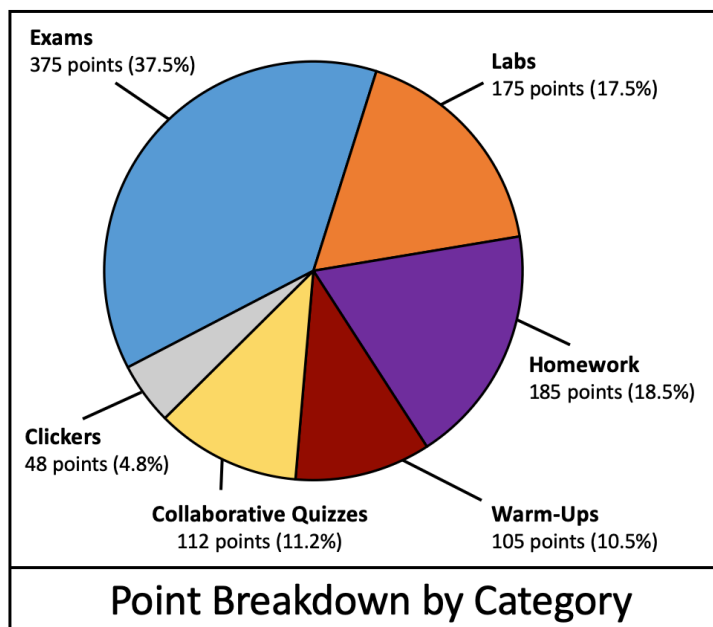
CHEM 1002 Lab Schedule							
Week	Sun	Monday	Tuesday	Wednesday	Thursday	Friday	Sat
1		January 3	4	5	6	7	8
		First Week of Classes – No Labs This Week					
2	9	10	11	12	13	14	15
		Lab 1: Intermolecular Forces Meet in your TA's Zoom Room for this lab					
3	16	17	18	19	20	21	22
		MLK Holiday No Lab	Lab 2: Begin Lab 8 Flame Challenge Assignment				
4	23	24	25	26	27	28	29
		Lab 3: Title TBD We are planning to be in Boettcher West 15 for this and all subsequent labs					
5	30	31	February 1	2	3	4	5
		Lab 4: Title TBD					
6	6	7	8	9	10	11	12
		Lab 5: Title TBD					
7	13	14	15	16	17	18	19
		Lab 6: Title TBD					
8	20	21	22	23	24	25	26
		Lab 7: Title TBD					
9	27	28	March 1	2	3	4	5
		Lab 8: Flame Challenge Presentations					
10	6	7	8	9	10	11	12
		THERE ARE NOT ANY LABS THIS WEEK! (Study For Exams)					

Note: Most 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 Info
Exams	375	37.5%	3 exams × 125 points each
Lab Assignments	175	17.5%	6 Labs × 25 points each Lowest 25 point lab score dropped Lab 2 + 8 = 50 pts total
Homework	185	18.5%	5 HW assignments × 25 points each 1 HW assignment × 45 points 1 syllabus quiz × 15 points
Warm-Up Questions	105	10.5%	Full credit for participation 7 points per lecture × 16 lectures 7 points × 1 discussion board Lowest 2 scores dropped
Collaborative Quizzes	112	11.2%	7 quizzes × 16 points each
In-Class Clicker Questions	48	4.8%	Full credit for participation 4 points per lecture × 16 lectures Lowest 4 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



- 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.

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 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.
 - **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.**
- **Online exams (if needed):** If we need to do an exam online, it will be administered through Canvas. During any online exam you may only use the provided supplemental materials. Once an exam is opened, the score earned stays.

Labs

- Online labs are held in your TA's zoom room. In-person labs will be held in BW 15.
- 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 midribs. 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 required contact tracing, and manage COVID protocols, I will be dropping your lowest **25 point** lab score. Do not miss any online labs.
 - This policy allows any student to have one missed, in-person, 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.
- 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 1002 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 1002 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 1002 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, 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.

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*.