

Course Syllabus - The Impact of Materials on Society

FALL 2022

EMA 1004, CLA 3930

Meeting Times – MWF, Period 3 (9:35-10:25am)

Meeting Location – Pugh 170

Credit Hours - 3 credit hours

Instructor – Prof. Kevin Jones; Office: 160 Rhines; Telephone: 846-3301; e-mail: kjones@eng.ufl.edu, text: 352 219 6641

Office Hours: Monday, Wednesday, Friday Period 4; or when I'm in my office.

Prof. Jones will be joined by Dr. Sophia Krzys-Acord (Associate Dean of Research), Prof. Susan Gillespie (Anthropology), Prof. Ken Sassaman (Anthropology), Prof. Mary Ann Eaverly (Classics), Prof. Florin Curta (History), Prof. Sean Adams (History), Prof. Haven Hawley (Library Sciences), Prof. Brenda Chalfin (Anthropology) and Prof. Marsha Bryant (English)

TA: Arianna Rivera

arianna.rivera@ufl.edu, office hours tbd

Catalog Description -

This course explores the connections between the discovery of new materials -- such as ceramics, concrete, precious stones and metals, glass, steel, plastics and semiconductors -- and social transformations worldwide. To see these connections, the course will fuse basic concepts in materials science and engineering with perspectives and methods from anthropology, history, English, classics, and sociology. From ancient cities and Roman baths, to steel foundries and Tupperware parties, to virtual communities and nanomedicine, we will learn how the physical properties of different materials intersect with cultural variables like gender, race, power/authority, religious beliefs, values, and financial and political systems to shape human civilization. By connecting lessons from the past to the inventions of cutting-edge materials, we will also explore the future social impacts of new materials in medicine, construction, transportation, clean energy, sports, and other areas. Engineers play important roles in changing or maintaining the structure and fabric of society. This course will explore how their materials-based technologies shape our society, as well as how society shapes engineering innovations.

Prerequisites and Co-requisites - none

Required Reading—The Substance of Civilization by Stephen L. Sass, ISBN-13: 9781559704731. An open source Textbook has been written for the class and is free to all students at https://ufl.pb.unizin.org/imos/. The class has a very comprehensive Canvas website.

Course Objectives

This course will introduce students to how new materials impacted social structure both historically and in the present day, and to the social and cultural forces that shape the development and use of materials and technologies from the past to future. To do this, this course will:

- Examine the interrelated nature of society and materials engineering
- Demonstrate how materials can be manipulated to solve technical and sociocultural problems
- Explore how social and cultural systems shape how humans perceive the intrinsic physical properties of materials
- Discuss how the impact of materials on society varies with the cultural and historical context.
- Give students a variety of approaches from the humanities, social sciences, and sciences to examine and shape the impact of materials on society.
- Teach students basic skills in cross-disciplinary communication, team work, and argumentative writing.
- Teach critical thinking about how disciplinary approaches and personal beliefs shape our understanding of materials.
- Teach creative thinking about how to apply this knowledge through applied projects discussing future materials innovations.

Course Outline

This course serves as a test bed for the development of a new course at universities and colleges around the country. Each week of the course will focus on a particular class of materials. The first two days of each week will examine the discovery of a particular material, its physical properties, and historical case studies of its major social impacts. In preparation for the third class meeting each week, you will watch a short video lecture on modern materials developed by scientists from around the U.S. The third class meeting of each module will feature a group activity to discover the possible social impacts of these future materials. A schedule of topics is provided below in the course notes.

Attendance and Expectations - All students are expected to attend and participate in class. The class is taught in an interactive lecture format, and includes discussion and practice activities. The TA's will be present to monitor the chat discussion questions and I will be sure to break into the lecture to address questions. Cell phones should be turned off in class. Reading of newspapers, work on assignments for this or other classes, or other activities that are not part of the class are not allowed during class time. There are a set of requirements for each module. This includes the following:

• Before the module begins it is recommended you read the material in the Sass book. Its only a few pages and helps get you ready for the lecture.

- Before the Social Science lecture you should read the chapter from the open source textbook IMOS. The chapters are also posted in each module on the canvas website.
- On the next day (after the social science lecture and before the third class for the module) you should watch the IMOS video on future materials (its short) and do a short homework assignment that is posted in canvas about the video.
- On the third class day for each module you will be required to
 - 1. Turn in the Homework
 - 2. There will be a short lecture and then you will join your groups in the breakout rooms to work in teams on an in class assignment
 - 3. Turn in one group in class assignment per group
 - 4. The group assignment will require you as a group of 4-5 to fill out a worksheet. You are allowed to use the internet and any other resources and a single grade will be given for each group. If you are not present you will receive a 0.
- During the semester there will also be two exams. They will happen during the class period as scheduled below. They will be a combination of multiple choice and short answer questions. The second exam will not be comprehensive.
- At the end of the semester there will be a final poster session where you will present your poster 5 times to 5 others in the class and you will evaluate 5 others posters. You will be graded both on your evaluation scores and how well you evaluated others. This comprises your final project grade.
- You will be asked at the end of the semester to evaluate the others in your group. This will be used for your class participation grade.
- There is no final exam.
- If you have any questions feel free to email me at kjones@eng.ufl.edu and I will usually respond immediately or within 24 hours.

Assignment	Due Date	Credit
Weekly Homework	See Due Dates Below	30%
Exam 1	Friday Oct. 7 in class	20%
Exam 2	Monday Dec. 5 in class	20%
Final Project	Tuesday, Wednesday Dec. 6,7	20%
Class Participation	Weekly group exercise	10%

Grades are not curved.

^{*}Extra-credit opportunities may be announced throughout the semester.

Weekly Schedule

Date	Topic (Question/Subject)	Physical Sciences + Q2 Method/Concept/Practice at Work	Reading & Activities for Before Class	Assigned Work Due
	Science and Sociology			
Wed. Aug. 24	Course Introduction,	An initial survey on the knowledge of materials is given We will discuss the impact paradigm and how we will edit this list Define the various properties of materials		
Fri Aug. 26	Introduction Continued	Introduces the structure of the course, the basic properties of materials, and the dynamic relationship between materials and society (materials shape society, but society shapes how we perceive and use materials).		
	Sociology Entanglement			
Mon. Aug. 29	Entanglement in of Clay in Catal Huyuk	Prof. Susan Gillespie (Anthropology) presents The Entanglement of Earth in the Age of Clay. Introduces the concepts of entanglement and a tanglegram	Read: The Entanglement of Earth in the Age of Clay _by Susan Gillespie	
	Science Clay			
Wed. Aug. 31	Science of Clay	material, history, early uses and applications of clay, physical-chemical	Read Excerpt (pp. 13-37) from Sass, Stephen L. (1998/2011) <i>The Substance of Civilization</i> . New York: Arcade Publishing.	

E	Self Reflection Entanglement with Rare Earths		
Sept. 2	exercise: Students explore their entanglement with rare earth elements	Humans and things develop interdependencies (entanglements) that trap them and constrain or limit their actions. The entanglement model developed by Ian Hodder is a method for analysis: humans depend on things, things depend on other things, things depend on humans; thus, humans depend on things that depend on other things and on humans. To prepare for Day 3, we will think about our unique entanglements with Rare Earths.	Complete this homework and turn it in in class. This is to prepare you for the group activity.

Date	Topic (Question/Subject)	Physical Sciences + Q2 Method/Concept/Practice at Work	Reading & Activities for Before Class	Assigned Work Due
	Science Ceramics			
Wed. Sept. 7	Science of Ceramics and Glass	Properties, abundance, and structure of ceramics and glass; history of the use of ceramics and glass and how these	Read Excerpt (pp. 98-123) from Sass, Stephen L. (1998/2011) The Substance of Civilization. New York: Arcade Publishing	
	Sociology Operational Chain			
Friday Sept. 9	knapping and the	Prof. Ken Sassaman (Anthropology) presents a lecture on Obsidian to Porcelain and the concept of an operational chain	Read <u>Firing Clay, Breaking Glass,</u> and the Past Futures of Ceramics by Kenneth Sassaman	
	Self Reflection Technical Ceramic Supply Chain			
Monday Sept. 12	Small group exercise: Students develop an operational chain for a complex ceramic they own	In this exercise we explore the concept of an operational chain as it applies to the fabrication of a technical ceramic	external site.)	Complete the functional ceramics homework and turn it in in class.

	Science Concrete			
Wed. Sept. 14		building materials and concrete: the formation of the ingredients that are used	Read Excerpt (pp. 124-133) from Sass, Stephen L. (1998/2011) The Substance of Civilization.	
	Sociology Symbolism			
Friday Sept. 16		Prof. Mary Ann Eaverly (Classics) presents a lecture on Roman Concrete: Engineering Society through Social Spaces. She will discuss the creation and use of Roman Concrete, and its relationships to concepts of gender, class, and empire in Ancient Rome.		
	Self Reflection Functional materials and Concrete			
Monday Sept. 19	Small group exercise: Students contemplate improvements to concrete structures they deem important to them	Concrete is a versatile material made even more useful by Smartcrete technology. Yet society's use of materials is based on their ideals. How do the types of buildings made from concrete reflect our society's ideals? The Smartcrete exercise builds on this to ask if new materials can operate in new ways within or outside of societal limitations.		Complete this individual homework assignment and submit it in class.
	Sociology Bronze Age and Trade			
Wed. Sept. 21		lecture on the history of trade of copper	Read: Copper and Bronze: The Far- Reaching Consequences of Metallurgy by Florin Curta	

	Science Copper and Bronze			
Friday Sept. 23			Read Excerpt (pp. 59-67) from Sass, Stephen L. (1998/2011) The Substance of Civilization	
	Self Reflection Trade issues in Photovoltaics			
Monday Sept. 26	Small group exercise: Students explore creating more sustainable trade for solar cells	The availability of materials impacts their use. Thus, social constructs like trade and conflict can influence the use and acceptance of certain materials. To prepare for Day 3, we will make ourselves aware of the global trade issues involved in sourcing component materials of new photovoltaics		Complete the photo voltaics homework assignment and submit it in class.
	Sociology Intrinsic vs Extrinsic Value			
Wed. Sept. 28		Luill discuss asimosa and turds intrinsicus	Read <u>Gold and Silver by</u> Florin Curta	

	Science Gold and Silver			
Friday Sept. 30		Prof. Jones gives an overview of gold and silver: properties, abundance, structure and location; manipulation, malleability, and the history of gold and silver; native vs. smelted, impurities, Roman amalgamation, liquation; Irish gold and the Gold Rush of 1848.	Read Excerpt (pp. 68-81) from Sass, Stephen L. (1998/2011) The Substance of Civilization	
	Self Reflection Value and Nanomedicine			
Monday Oct. 3	Small group exercise: Students explore how the perceived value of gold may affect its intrinsic value and applications in the future.	Value is a social concept that is assigned to a material based on many factors. Materials have intrinsic physical properties, only some of which are selected as more relevant by a society in meeting social needs based on cultural perspectives. But, a material's use can change and this can affect its financial value.		
Wed. Oct. 5	Review for Exam 1	A review of the material to be covered on exam 1 will be presented. The exam will be short answer		
Friday Oct. 7	Exam 1			

	Experiential Learning			
Monday Oct 10	Making Concrete Bars	The goal is to put to work some of the concepts we've been studying to build and break concrete blocks, and develop some generalized IMOS principles to add to our customized Impact Paradigm.	Wear clothes that can get dirty and we will meet outside at the designated location. Bring any material you want to explore using as a reinforcement for your concrete bar	
	Science iron and Steel			
Wed. Oct. 12		& steel: review the properties of iron and steel, the history of iron making	Read Excerpt (pp. 83-97, 203- 214) from Sass, Stephen L. (1998/2011) The Substance of Civilization.	
	Sociology Carnegie and Creative Destruction			
Friday Oct. 14		Prof. Sean Adams (History) presents Carnegie, Creative Destruction and American Steel, a lecture that outlines the historical context of the rise of American steel, with a focus on the business career of Andrew Carnegie.	Read <u>"Carnegie, Creative</u> Destruction, and American Steel" by Sean Adams	

	Self Reflection Creative destruction and Mg alloys			
Monday Oct. 17	Small group exercise: Students the application of creative destruction to a product based on Mg alloy	The concept of creative destruction not only helps us to understand some of the social impacts of past materials, but it can also help us discover how to facilitate successful business practices using modern materials innovations. In this exercise, we will consider the potential markets for magnesium alloys, imagine what sectors of the economy could be creatively destroyed by them, and brainstorm ways to put these sectors back to work: creative creation, not creative destruction!		Complete the individual homework assign ment and submit it in class
	Experiential Learning			
Wed. Oct. 19	Breaking Concrete Bars	In this class you will be asked along with you other members of you small group to use an impact test to measure the fracture toughness of your two concrete bars. We will compare the results and discuss the reasons for your observations.		
	Science Aluminum			
Friday Oct. 21		Prof. Jones gives an overview of aluminum: explore the origin of early chemistry and how new elements were discovered including	Read Excerpt (pp. 186-197) from Sass, Stephen L. (1998/2011) The Substance of Civilization.	

		aluminum. The properties of aluminum are discussed as well as the history of aluminum production and the birth of ALCOA.		
	Sociology Monopolies			
Monday Oct. 24		"Aluminum Alcoa and Anti-trust," a	Read: <u>Aluminum, Alcoa, and</u> <u>Anti-Trust</u> by Sean Adams	
	Self Reflection Patents and Amorphous metals			
Wed. Oct. 26	Small group exercise: Students explore creating a new product using amorphous metals and the different approaches to protecting that invention	Just as aluminum was a material in search of an application, opportunities abound for how we might use bulk metallic glass. But, creating new knowledge about how to use metallic glass presents opportunities in the handling of intellectual property. Bearing in mind the lessons of Alcoa, how should we handle research and development versus product marketing in the metallic glass industry?		Complete the individual homework assignment and submit it in class

	Science Polymers and Plastics			
Friday Oct. 28		Prof. Jones presents background on plastics. This lecture will discuss the class of materials we call polymers, including a review of their properties, how they were discovered and some of their history.	Read Excerpt (pp. 215-237) from Sass, Stephen L. (1998/2011) The Substance of Civilization.	
	Sociology Tupper and Marketing			
Monday Oct. 31	Salf Deflection	Prof. Marsha Bryant (English) presents "Fantastic Plastics in Postwar America: Earl Tupper, Brownie Wise, and Materials Marketing," a lecture about the invention of Poly-T, creation of the Tupperware party phenomenon, and the revolutions in marketing and home sales that convinced America to love the polymer.	Read <u>Tupperware and Polymers"</u> by Marsha Bryant	
	Self Reflection Marketing Biopolymers			
Wed. Nov. 2	Small group exercise: Students develop marketing campaigns for biopolymer based bicycle helmets	Social and cultural systems such as language, gender, aesthetics, home design, and advertising shape the ways we perceive the intrinsic physical properties of materials. As we learned from the history of Tupperware, products don't simply	Watch biopolymers video	Complete the individual homework assignment and submit it in class

		sell themselves; Brownie Wise spent extensive time finding ways to interest audiences in purchasing Tupperware by humanizing it, showing its relevance to their lives, and inventing the trademark Tupperware "burp". Moreover, today, many people have an inherent distrust of plastics due to health and sustainability concerns. In this activity, we will apply lessons from the marketing of Tupperware to brainstorm successful strategies to interest different consumer groups in new polymer-based products.	
	Science Plastics Recycling		
Friday Nov. 4		Prof. Jones gives an overview of Plastics recycling including magnitude of the problem, approaches to recycling, effectiveness of these approaches and future diretions	
	Sociology tbd		
Monday Nov. 7		Prof. Brenda Chalfin tbd.	

	Self Reflection			
Wed. Nov. 9	Small group exercise: tbd		Watch: This video on Plastics Recycling	Complete and submit it in class
Friday Nov. 11	Veterans Day Holiday			
	Science Paper			
Mon. Nov. 14		Prof. Jones gives an overview of writing materials from clay through paper. This includes the processing that was required to convert the media from raw material to a final useful product. The chemistry of processing of paper including the chemistry and separation of cellulose from lignin is discussed. Finally the concept of magnetic storage is presented.	Read Excerpt (pp. 134-146) from Sass, Stephen L. (1998/2011) The Substance of Civilization.	

	Sociology Information Storage			
Wed. Nov. 16		tbd presents a lecture on how data storage and sharing are social practices that shape what we understand data to mean.	Read: <u>Politics of Knowledge</u> by Bonnie Effros	
	Self Reflection Digital storage and the right to be forgotten			
Friday Nov. 18	Small group exercise: Students act as members of editorial board to explore the right to be forgotten	We learn from the history of writing materials that innovations in materials often change the lives of communities in anticipated and unanticipated fashions. Who has access to writing materials, and how long the information recorded in writing materials lasts, can have profound impacts upon social equality. Here we examine new innovations in magnetic storage, enabling us to record far more than ever before. What information will we use this material to store, who will have access to this information, and how will information storage on a massive scale affect our communities and political regimes?		Complete the individual homework assignment and submit it in class

	Science Semiconductors and Silicon			
Monday Nov. 21		Prof. Jones presents background on silicon. Semiconductors possess unique electrical properties that can be manipulated in order to drive the digital revolution. This lecture covers the basics of semiconductor physics including why silicon has a bandgap and what it means in terms of electrical conduction. The goal is to give the student an appreciation for why semiconductors are such a powerful driver in today's society.	Read Excerpt (pp. 265-276) from Sass, Stephen L. (1998/2011) The Substance of Civilization	
	Sociology Delegation and the Web			
Monday Nov. 28		, 0	Read excerpt from Sherry Turkle (2011) Alone Together: Why We Expect More from Technology and Less from Each Other.	

		ourselves developing quite curious relationships with these devices, as well as with each other.		
	Self Reflection Personal Delegation			
Wed. Nov. 30		experience, semiconductor-based technologies affect how we interact with each other on a daily basis. We argued that this is because we "delegate" human actions to semiconductors. If semiconductors are going to affect our lives on such a personal basis, we should be intentional in how we design and use them. For Day 3, we will conduct and mine personal interviews for information on what people would like to be able to do with 2D materials, and brainstorm ways to let our human needs drive our design of future materials innovations rather than the other way around	Watch: 2-D Materials (13:49)	Complete the individual homework assignment and submit it in class
Friday Dec. 2	Review for Exam 2	Exam 2 is not comprehensive and will cover all of the material presented since Exam 1.		

Monday Dec. 5	Exam 2		
	Oalf Daffaatian		
_	Self Reflection		
Tuesday Dec. 6 Evening	Poster Session 1	This project is an opportunity for you to reflect upon your own personal learning about the ways that you see the humanities, social sciences, and engineering to connect. Throughout the course, we have been exploring the major social impacts of different materials, which have fundamentally shaped human societies and cultures. We've also been discussing the ways in which the social and cultural context of engineering has shaped how we perceive and engineer materials. We have been bringing these lessons together by adding questions to the Impact Paradigm after each module and applying lessons from the past to navigate the future. You should be able to process this learning by integrating the perspectives on materials that we get from different disciplines in a study of one particular material.	

Wed. Dec. 7	Course Evaluations Post course Survey/interviews		
Wed. Dec. 7 Evening	Poster Session 2	Everyone with a Last name between K-Z will present posters tonight Everyone with a last name A-J will evaluate posters tonight	

Make-up Exam Policy - Make-up exams are given only for reasons of illness and in accordance with University of Florida regulations.

Students Requiring Accommodations

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, https://www.dso.ufl.edu/drc) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

Course Evaluation

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at https://evaluations.ufl.edu/evals. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at https://evaluations.ufl.edu/results/.

University Honesty Policy

UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to

report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Software Use

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Student Privacy

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see: http://registrar.ufl.edu/catalog0910/policies/regulationferpa.html

Also here is the Zoom privacy policy https://zoom.us/privacy

Campus Resources:

_

Health and Wellness

- If a student who is withheld from campus attends class, the student should be asked to leave the classroom and be reported to the Dean of Students Office
- You are expected to wear approved face coverings at all times during class and within buildings even if you are vaccinated. Please continue to follow healthy habits, including best practices like frequent hand washing. Following these practices is our responsibility as Gators.
- If you are sick, stay home and self-quarantine. Please visit the UF Health Screen, Test & Protect website about next steps, retake the questionnaire and schedule your test for no sooner than 24 hours after your symptoms began. Please call your primary care provider if you are ill and need immediate care or the UF Student Health Care Center at 352-392-1161 (or email covid@shcc.ufl.edu) to be evaluated for testing and to receive further instructions about returning to campus. UF Health Screen, Test & Protect offers guidance when you are sick, have been exposed to someone who has tested positive or have tested positive yourself. Visit the UF Health Screen, Test & Protect website for more information.

_

U Matter, We Care:

If you or a friend is in distress, please contact <u>umatter@ufl.edu</u> or 352 392-1575 so that a team member can reach out to the student.

Counseling and Wellness Center: http://www.counseling.ufl.edu/cwc, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Assault Recovery Services (SARS)

Student Health Care Center, 392-1161.
University Police Department at 392-1111 (or 9-1-1 for emergencies), or http://www.police.ufl.edu/ .
-
<u>Academic Resources</u>
E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu. https://lss.at.ufl.edu/help.shtml
Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling. https://www.crc.ufl.edu/ .
Library Support , http://cms.uflib.ufl.edu/ask . Various ways to receive assistance with respect to using the libraries or finding resources.
Teaching Center , Broward Hall, 392-2010 or 392-6420. General study skills and tutoring. https://teachingcenter.ufl.edu/ .

Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers. https://writing.ufl.edu/writing-studio/.

Student Complaints Campus: https://www.dso.ufl.edu/documents/UF Complaints policy.pdf.

On-Line Students Complaints: http://www.distance.ufl.edu/student-complaint-process.

COVID-19

- You are expected to follow the university recommended face coverings policy at all times during class and within buildings even if you are vaccinated.
- If you are sick, stay home and self-quarantine. Please visit the UF Health Screen, Test & Protect website about next steps, retake the questionnaire and schedule your test for no sooner than 24 hours after your symptoms began. Please call your primary care provider if you are ill and need immediate care or the UF Student Health Care Center at 352-392-1161 (or email covid@shcc.ufl.edu) to be evaluated for testing and to receive further instructions about returning to campus.
- If you are withheld from campus by the Department of Health through Screen, Test & Protect, you are not permitted to use any on campus facilities. Students attempting to attend campus activities when withheld from campus will be referred to the Dean of Students Office.
- UF Health Screen, Test & Protect offers guidance when you are sick, have been exposed to someone who has tested positive or have tested positive yourself. Visit the <u>UF Health Screen</u>, <u>Test & Protect website</u> for more information.
- Please continue to follow healthy habits, including best practices like frequent hand washing. Following these practices is our responsibility as Gators.
- Online Course Recording

Our class sessions may be audio visually recorded for students in the class to refer back and for enrolled students who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.