

GEOL 412 Oceans, Climate & Environment

4 Units

Spring 2023

MW 10-11.20 am

Location: ZHS 200

This class requires substantial independent literature-based research equivalent to 1 of the 4 credits.

Climate sustainability theme with focus on California.

Instructor: Dr. Sarah Feakins

Office: ZHS 223F

Office Hours: drop in or by appointment

Contact Info: feakins@usc.edu

Dr. Feakins replies to emails within hours or certainly 2 work days.

IT Help: Steven Lin

Contact Info: ZHS 117 slin2@usc.edu

Library research help: In person and by phone, chat and email at [Ask a Librarian](#), through [research guides](#) and [FAQs](#)

Course Description

Fundamentals of climate including atmosphere and ocean. Topics include radiative energy balance, ocean-atmosphere linkages and approaches to study climate while building quantitative and qualitative skills.

Course Objectives and Outcomes:

This course is intended to provide a foundation for understanding the Earth's climate and ocean system and is geared towards undergraduate majors and minors in Earth Sciences and Environmental Studies.

Undergraduates from other disciplines and graduate students seeking a foundation in climate science are also welcome. We will learn about the fundamental properties of the ocean and atmosphere. We discover the key factors that control climate and how these have varied through time. We will explore approaches to climate, ocean and environmental science including an overview of modern observations and modeling and 'proxy' climate records that can extend our knowledge beyond the short instrumental period. We will learn about how the climate system works, and how it varies and consider how climatic and environmental variability influences societies in the past, present and future. **This course has a climate sustainability theme focused on California, see details on the next page.** You will develop your scientific skills through assignments building towards individual research projects that also hone a range of presentation skills.

Who should take this class?

This class is one of the electives for the Earth Science and for the Environmental Studies undergraduate major and minor degree tracks. Past students have included those in Engineering degree tracks, Applied Math, Physical Sciences and Political Economy.

Recommended Preparation: A GE course in Earth Science preferably: GEOL 107Lg/150Lg/160Lg. Registration stated corequisite: [MATH 125](#) and 1 from ([CHEM 105A](#) or [CHEM 103](#)) ask [Darlene Garza garzadar@usc.edu](mailto:Darlene.Garza@usc.edu) if you need clearance for registration.

Learning Objectives (LO)

Learning objectives for the course are an adapted subset from those of the Department of Earth Sciences:

1. Students will learn from lectures, classroom discussions and textbook reading about fundamental principles of climate science and accumulated knowledge.
2. Students will perform calculations to explain and predict climate, building quantitative skills.
3. Students will sketch diagrams and use estimation to demonstrate conceptual and quantitative skill.
4. Students will graph climate data.
5. Students will develop observational, critical reasoning and data description skills.
6. Students will participate in classroom discussions, reflective self-assessment and peer-evaluation. These active methods aid learning, observation and communication skills are needed to develop professional skills for scientific careers, team-work environments and personal development.
7. Students will learn where to access scientific information, graphical and written for future graduate research, scientific careers and lifelong-learning beyond the class as knowledge is not static and science progresses fast, especially with climate change. Students will use the USC library and online databases to locate and retrieve publications relevant to a research question or project, to formulate and evaluate research questions and to accurately report on and draw conclusions from careful readings of works of research literature.
8. Students will demonstrate the ability to accurately and ethically incorporate and cite a variety of scholarly sources in their written reports and oral presentations, and will evaluate the relative reliability of sources of information (peer-review, journal/publisher, online publishing etc.).
9. Students will demonstrate the ability to acquire and communicate scientific data, ideas, and interpretations through written, oral, and visual means in short and long format.
10. Students will produce written and oral reports that clearly and accurately describe and illustrate the background, methods, data, and interpretations.

Learning will be achieved via guided, lecture- and discussion-based learning inside the classroom, as well as via independent literature-based learning outside of the classroom. Learning will be assessed via a variety of homework assignments and examinations, written reports and oral presentations.

Climate sustainability theme

Motivation: Climate change and its societal implications are becoming increasingly apparent across the world, the United States, California and Los Angeles. Climate scientists are making clear statements about the state of climate and the mitigation steps that could be made to reduce the magnitude of climate change in the future. This class has always provided climate science training to develop climate skills, but the urgency of our situation requires a focused response. We have readings, carbon calculations and climate science actionable information towards California's climate initiatives. With this effort GEOL 412 seeks to train scientists ready to use climate science to inform management of a sustainable climate future.

Learning Objective: The ability to identify the key aspects of climate science associated with anthropogenic greenhouse gas emissions and associated climate change is a critical objective for GEOL 412. Observation and thinking skills are key to prepare climate-educated students armed not just with today's knowledge but also with training to learn from and respond to new data emerging in our changing world. This class will help students to seek scientific sources of information on the current and evolving state of the climate and climate science. The class will train students for civic engagement in climate and societal issues with an awareness of individual and institutional responsibility and actions. Students will be asked to:

- A. Calculate carbon emissions for an individual, as part of preparations for in-class discussions of individual and institutional responsibility.
 - a. Individual <https://coolclimate.berkeley.edu/calculator>
 - b. University <https://stars.aashe.org/>
- B. Explore and read sections of the US Fifth National Climate Assessment (NCA5) issued in 2023. <https://nca2023.globalchange.gov/>
- C. Read the Second State of the Carbon Cycle Report (SOCCR2) issued in 2018. <https://carbon2018.globalchange.gov/>
- D. Read the key graphs from the IPCC Special Report issued in 2018 on carbon emissions trajectories needed to stay <1.5°C. <https://www.ipcc.ch/sr15/>
- E. Identify and respond to California's Cap and Trade funded climate initiatives. <http://www.caclimateinvestments.ca.gov/>
- F. The State of California is leading the way on climate action. Independent research topics will be arranged to achieve class coverage of a range of climate topics - topics will be elected and traded via a consensus approach to achieve broad coverage for civic engagement in Californian climate issues.

Teaching Philosophy

Learning via incorporating feedback during the semester towards a larger goal.

All too often homework is attempted, graded and the cycle is complete. Beyond the classroom, this is not how most products are delivered, instead many products only appear after being improved through the incorporation of feedback. As part of this course, many of the individual homework assignments will build towards the research project, this allows learning and the adoption of a growth-mindset, known to be important to success in many aspects of life. This class includes an in-depth involvement in researching a topic of your choosing. In the course of the semester, you will perform a variety of assignments that will hone your skills in a variety of presentation formats, while allowing you to incorporate feedback and contribute to development of ideas that supports you in developing a polished and in-depth final product. *I encourage you to make use of the feedback on your graded assignments during the semester toward your research project talk and final paper.*

Learning through independent research projects.

The USC Earth Science department considers that individual research projects are: "effective learning tools that require students to apply what they have learned and synthesize a body of knowledge, without having a proscribed "correct" answer. They have been effective in inspiring some students to continue on to do directed research projects or acquire a part time job with faculty engaged in funded research projects." More broadly they allow you the skills to direct your own learning, which is very good preparation for graduate degree programs and more broadly offers lifelong benefits in terms of your personal fulfillment and career development.

Required Readings and Supplementary Materials

Textbook (required): *Global Physical Climatology 2nd edition*, by Dennis L. Hartmann, ISBN 0-12-328530-5, Academic Press, London. Available new, used or ebook from the USC bookstore, or from Amazon etc. Additional readings will be provided and/or located by students using database software via USC libraries.

Library research help: Need to do research but don't know where to start? Searching for a book, article, or data to support your argument? Not sure how to cite a source in your bibliography? Ask a librarian! Research help is available: In person and by phone, chat and email at [Ask a Librarian](#), through [research guides](#) and [FAQs](#).

Technology

Technology Use: This course is web and technology-enhanced. Class materials and some readings will be posted on Brightspace. Technology-enhanced learning strategies will be used, including powerpoint presentations by students, for class peer review. **Technological Proficiency and Hardware/Software Required:** You will need access to a computer and to standard Microsoft Office software: Word, Excel and Powerpoint. Students can download via USC: <https://itservices.usc.edu/officestudents/>

Classroom Participation Policies

Phones etc. Texting, email, browsing, is not permitted in class except where required for in-class work. Students are encouraged to use a paper notebook for notes for best learning experience and to reduce the powerful distraction of electronic devices, unless otherwise arranged with the instructor.

Attendance: Students are expected to attend all class sessions, please send an email if you have to miss class due to an unavoidable issue, e.g. family emergency or ill-health.

Description and Assessment of Assignments

Homework assignments: There are 6 assignments (2 numerical, 3 written, 1 spoken) counted at 10pt each (30% of total). See schedule for components, additional instructions in class.

Midterm examination: 40 pts. 20% of total. Closed book, in class, handwritten examination that tests your ability to summarize and distill the concepts in the class, comprehend new scientific data in graphical form, and undertake calculations similar to that used in the first half of the course.

Individual Powerpoint Presentation: 10pts. 5% of total. Use the skills needed for academic or industry technical presentations. Detailed instructions to be given in class.

Participation: 10pts. 5% of total. Engagement is necessary for presentations, peer review, and group work. 100% participation is expected, non-participation/non-attendance proportionally lowers the grade.

Research paper: 40 pts. 20% of total. An in-depth project researched from the literature written as a essay including, use of figures, referencing etc. Detailed instructions to be given in class.

Final examination: 40 pts. 20% of total. Closed-book, in class, handwritten, cumulative assessment. This examination primarily tests your ability to articulate a coherent argument, and an organized framework of the key points on a topic along with examples and facts to support that argument – in essay style answers. Short answer questions will ask you to summarize and distill the concepts in the class, comprehend new scientific data in graphical form, and undertake calculations similar to the first half of the course.

Activities teach various writing, reading, graphing, communication, presentation and research objectives – and the evaluated activities and rubrics assess the degree to which students met the learning objectives. Examinations evaluate student comprehension of the lecture and readings (textbook and assigned readings); they will emphasize material covered in lecture. They will include calculations, diagrams, short and long answer questions and will emphasize comprehension of the concepts, rather than rote memorization.

Grading Breakdown

Grading will be based on your performance on numerical, graphical and written assignments and presentations.

Assignment	Points	%
Homework assignments (6 assignments)	60	30
Midterm examination	40	20
Research talk (powerpoint)	10	5
Participation	10	5
Term paper	40	20
Final examination	40	20
TOTAL	200	100

Grading Scale

Course final grades will be determined using the following scale

A 95-100	C 73-76
A- 90-94	C- 70-72
B+ 87-89	D+ 67-69
B 83-86	D 63-66
B- 80-82	D- 60-62
C+ 77-79	F 59 and below

Assignment Rubrics

A: Independently identifies important scientific research questions or if topic assigned, frames the topic well; uses coherent, clear, compelling, excellent argumentation; demonstrates a qualitative and quantitative grasp of concepts; uses appropriate examples or data to support the argument; appropriate display and reporting of data.

A-: As for A, but some minor weaknesses in one or two categories.

B+: As above but minor weaknesses in more than 2 categories.

B: Good quality work, but may suffer in terms of organization, such as may reveal minor gaps in comprehension, articulation and/or presentation of ideas.

B-: As above but with minor weaknesses in all areas, or major in one.

C: Passing work, with +/- as appropriate; minimum standard for a geoscientist.

D: Not-passing work for major credit; does not meet minimum standards for a geoscientist.

F: Failing work.

Assignment Submission Policy

Due dates for all assignments are noted on the weekly breakdown.

Assignments due in class should be delivered in hard copy to the professor in the classroom at the start of class (unless noted otherwise). Electronically submitted documents should be submitted as Microsoft Office documents attached to an e-mail to feakins@usc.edu (unless noted otherwise). Please use the following format for naming your files: 'Last name_First name_Assignment number'.

Late policy: Late work will not be accepted after graded assignments have been returned. Prior to that late assignments will receive one grade increment lower per day late, i.e. from A- to B+, or -5% per day (including weekend days). Under some special circumstances e.g. due to a medical emergency, university approved athletic absence, or religious holiday observance, short extensions may be granted – *if you let the professor know in advance*.

Grading Timeline Assignments received on time will be returned in class, the week after the due date.

Course Schedule: A Weekly Breakdown

Wk	Prep.	Class	Follow up
1 1.13	GPC <i>chapter 1</i>	Introduction to Climate and Ocean Science <i>Introduction to the climate system: the atmosphere as an efficient communicator, the ocean as a heat storage and transport slower communicator. LO: 1.</i>	
	GPC 2.1-2.6 and 3.1-3.4 and 4.1, 4.4	Planetary Scale Energy Budgets <i>Climate at the planetary scale. Solar emissions: Plank, Wien and Stephan Boltzman laws of blackbody radiation. Insolation received at the Earth. Temperature of emission of the Earth. Energy Budget of the Planet. Consideration of other planets in our solar system; and of other solar systems. Earth 2? LO: 1-3.</i>	Assignment 1: energy balance problem set, due Monday week 3 in class. LO: 1. select appropriate principles, 2. employ quantitative skills.
2 1.20	IR reading	MLK day no class	
	<u>Reading:</u> GPC 2.5, 3.5, 3.8; <i>Petit et al., 1999.</i>	Atmosphere – Greenhouse Effect <i>Climate at the planetary scale: Role of Greenhouse Gases. Principals of absorption and emission in gases. Temperature at the surface of the Earth. Planetary Energy Balance for a planet with an atmosphere. Construction of a 1D model of earth's climate considering a 1 layer atmosphere. Climate sensitivity to GHGs. LO: 1-3.</i>	
3 1.27	<u>Reading:</u> GPC 2.7-2.9, 4.7-4.9, 6.1, 6.3, 6.5	Atmosphere – Latitudinal Variations <i>Insolation variations with latitude. Obliquity of the Earth's axis and seasonality. Latitudinal variations in energy budgets. Ocean and atmospheric heat transport. General circulation of the atmosphere, Trade Winds, ITCZ, Westerlies. Coriolis Effect. LO: 1-3.</i>	
	GPC 1.5, 3.9, 3.10, 3.12	Atmosphere – Moisture in the Atmosphere <i>We start with watching a simulation of water vapor and precipitation during the course of the year for the planet, make and discuss observations. Detection of moisture in the atmosphere (visible, IR). Moisture convection and lateral transport and latent heat flux. The fundamental rule governing moisture in the atmosphere: Claussius-Clapeyron Relation, water vapor as key feedback on warming. LO: 1-4.</i>	Assignment 2: – moisture in the atmosphere, due Wed week 4 in class. LO: 1-5, understanding graphical data, quantitative skills.
4 2.3	GPC 5 NCA4_chpt 25 – SW and FAQs	Atmosphere – Hydrological Cycle <i>Fundamentals of the global hydrological cycle, quantification of components, fluxes. Global and precipitation and evaporation patterns. Consideration of regional precipitation and potential evaporation seasonality and implications for water availability. Case study California's water: importance of snowpack, climate change. LO: 1-4.</i>	Independent research project (IR): identify a problem, read introductory material. Ready for IR Worksheet to be completed using google doc/sheet during Wed class. LO: 7.
	GPC 6.5 worldmonsoon.org	Atmosphere – Monsoons <i>Seasonality, land-sea temperature contrasts, sea breezes, monsoons, ITCZ migration. Examples: Asian Monsoon and societal issues; West African Monsoon; North American Monsoon. Santa Ana Winds as an example of an episodic reversal of prevailing winds – with fire consequences. LO: 1-3.</i>	Assignment 3: prepare pitch for Wed week 5, instructions given in class. LO: 9-10 presentation skills, concise summarization and framing of problems.

5 2.10	IR reading	Atmosphere – Lapse Rate Games <i>Climate calculations using lapse rates, using simple graphing techniques with an emphasis on back of the envelope estimates, with discussions of the magnitude of uncertainties in various assumptions. Instability and stability in the atmosphere. Katabatic winds and polynyas. Temperature inversions. Orographic precipitation. Discussions LO: 1-5.</i>	
	IR reading CA climate initiative Cap & Trade	“Pitch perfect” : in Wed class brief oral “pitch” of your independent study topic (<i>Assignment 3</i>). LO: 9. <i>In class peer review. LO: 6, reflective self-assessment and peer-evaluation.</i>	
6 2.17		President’s Day no class Study for the midterm examination	<i>Study for the midterm examination. LO: 1, acquire knowledge of fundamental principles of climate science.</i>
	Assigned journal articles	Ocean Temperatures <i>We will look at temperature data as collected by observations and collated into global maps. You will study the availability of data across spatial and temporal scales, to find what is known well and what is known less well. You will also learn how to access climate data to see evolving trends. LO: 1, 4, 5.</i>	Assignment 4: Real climate data exercise – begin in class, due in next class (Wed). LO: 5-10, esp 5: observation, critical reasoning and data description skills.
7 2.24	GPC 7.2	Ocean Properties <i>Dissolved solids, salinity units, means of measurement, differences in riverine inputs of freshwater between ocean basins, salinity as a conservative tracer of deep water masses. Temperature and potential temperature. Controls on density. Density stratification in the oceans. Dissolved gases and air-sea gas exchange – deoxygenation, acidification LO: 1, 3, 5.</i>	
		MIDTERM EXAM Wed, February 22nd <i>In class, handwritten. LO: 1-5, 9.</i>	
8 3.3	IR reading	Workshop session : locating academic articles, conducting a literature search, referencing. LO: 1, 5-7. Mid-semester reflective feedback for student & instructor	IR: read 1 publication on your research topic, worksheet due Wed in class for in class review, LO: 6-10.
	Assigned journal articles NCA4_chpt 19_SE	Hurricanes <i>Necessary conditions for hurricane formation. Limitations on modeling hurricanes: scale issues, hurricane genesis, hurricane size and strength, hurricane tracks. Consideration of what can and can’t be well resolved in existing models. Model skill. Scope for improvement in seasonal predictions. Changing hurricane risk, societal issues. LO: 1, 3, 5.</i>	
9 3.10	GPC 7.1, 7.4-7.6, 7.8	Surface Ocean Circulation <i>Surface: Major ocean currents, and features. Controls on ocean circulation: atmospheric circulation, Coriolis effect, boundary effects. Winds, wind drag and Ekman transport, direction and speed of ocean currents. Gyre circulation, boundary currents, ocean dynamic topography, geostrophic flow. Eddies. Gulf Stream, California Current. LO: 1, 3, 5.</i>	Assignment 5: ocean dynamics due Wed in class

		Deep Ocean Circulation <i>Deep: T, S in the deep ocean, identification of major water masses. The Thermohaline circulation. How has ocean circulation changed in the past including during glacial times and in deep time, including greenhouse climates? LO: 1, 3, 5.</i>	
10 3.17		**SPRING BREAK**	
11 3.24	GPC 8, esp. 8.3	El Niño Southern Oscillation ENSO <i>History of ENSO observations, ocean SST, SSTa, thermocline; SLP and Southern Oscillation, Bjerknes feedback and delayed oscillator, teleconnections and impacts, ENSO and paleoclimate, and future trends. LO: 1, 5.</i>	
	GPC 12.1-12.4	Natural climate variability: Sunspots, Volcanoes <i>We consider 2 means of altering climate with different temporal characteristics. 1. The Sun and its variations in radiative fluxes through time. 2. Volcanic aerosols, past reconstructions. Historical, satellite and proxy evidence for past variations and implications for climate. Geoengineering. LO: 1, 5.</i>	Assignment 6: research from the scientific literature assignment due next Monday. LO: 5, 7-10.
12 3.31	GPC 13 IPCC 1.5 or Thread reader	Anthropogenic climate change <i>Human induced climate changes, greenhouse gases, aerosols, climate feedbacks. Signs of climate change: temperature, ice and sea level. LO: 1, 2, 5.</i>	<i>Calculate carbon emissions.</i>
	GPC 12.5-12.6	Orbital pacing of climate change <i>Discovery of glacial interglacial cycles, oceanography and oxygen isotopes, variations in the Earth's orbit. Pleistocene paleoclimate and paleoceanography. Deglaciations. LO: 1.</i>	<i>IR prepare ppt for wk 13/14. LO: 5, 7-10.</i>
13 4.7	<i>IR reading</i>	Student Presentations: <i>Powerpoint presentation of your independent study project (LO: 5, 7-10), peer review (LO: 6).</i>	
	<i>IR reading</i>	Student Presentations: <i>Powerpoint presentation of your independent study project (LO: 5, 7-10), peer review (LO: 6).</i>	<i>IR reminder to write your term paper, 3 wks left</i>
14 4.14	<i>IR reading</i>	Student Presentations: <i>Powerpoint presentation of your independent study project (LO: 5, 7-10), peer review (LO: 6).</i>	
	<i>IR reading</i>	Student Presentations: <i>Powerpoint presentation of your independent study project (LO: 5, 7-10), peer review (LO: 6).</i>	<i>IR reminder to complete draft term paper, 2 wks left</i>
15 4.21	GPC 9	Past Climate Change: Marine Proxies <i>Ocean sediments; geochemical approaches to reconstructing past conditions including oxygen isotopes, Mg/Ca, biomarkers; variations in deep sea and sea surface temperature, ice volume and other questions. The geological time component of carbon burial in ocean sediments today and in past oceans and the long timescale variations in the carbon cycle. What can geological archives tell us about past climate and future analogs. LO: 1, 5.</i>	
	GPC 9	Past Climate Change: Terrestrial Proxies <i>Continental proxies and archives: tree rings, pollen, biomarkers, lake cores, ice cores, speleothems, geomorphology. How can we reconstruct climate and ecosystems in the past and at what resolutions. What can geological archives tell us about past climate and future analogs. LO: 1, 5.</i>	<i>IR reminder to edit your term paper (1 week left).</i>

16 4.28	GPC 10 NCA4 IPCC1.5	Mechanisms 1: Climate Sensitivity & Feedback Mechanisms <i>Forcings, non-linear responses, equilibrium states, positive and negative feedbacks, tipping points. Discuss managing climate future with emissions/geoengineering. LO: 1, 5, 6.</i>	
	GPC 11	Mechanisms 2: Climate models <i>Why do we need models? Testing cause and effect. Hierarchy of model type. How to use models to answer climate science questions. Example applications. Projections for emissions scenarios – summative discussion. LO: 1, 5, 6.</i>	Submit term paper on your independent research project. Due last day of classes (Fri) LO: 5, 7-10.
Study week		<i>Study from your notes on the class topics, textbook readings and assigned homeworks. Prepare to answer long (essay) and short format questions including calculations and diagrams. LO: 1-5,9. Study material across the entire semester.</i>	
Final Exam		<i>Closed book, cumulative, handwritten. LO: 1-5,9</i> At the USC official scheduled final examination time: Monday May 12th 8-10am in ZHS 200	

About the instructor:

Dr. Sarah Feakins is a Professor of Earth Sciences at USC, where she has been a member of faculty since 2008. Previously, she was a NOAA Climate and Global Change Postdoctoral Fellow at the California Institute of Technology from 2006-2008 working on proxy calibration in isotope biogeochemistry. She obtained her PhD (Geology) in from Columbia University’s Department of Earth and Environmental Sciences at Lamont-Doherty Earth Observatory in 2006 with a thesis reconstructing paleoenvironments of northeast Africa during the Neogene and related to human origins. She obtained a first-class degree in Geography at the University of Oxford (1998-2001). At USC she has taught FSEM, GEOL 107, 387a, 412, 566 and 575, while running a research program from the Leaf Wax Lab, funded by the US National Science Foundation, American Chemical Society and other sources with a team of graduate and undergraduate students. Research webpage: earth.usc.edu/feakins/, publications [Google Scholar](#).



Prof. Feakins has a passion for engaging students in thinking about the Earth and in honing expertise in biogeochemistry needed to push forward analytical frontiers to uncover evidence for past environments to reach a deeper understanding of the climate system, the evolution of our species and our future trajectory. While some build models, mostly trained in the modern to predict the future, her research approach takes a forensic approach to see how the climate system has operated at warm times in the past to provide a geological window into our future. How do precipitation patterns and ecosystems respond as the climate shifts? Earth history provides real-world realizations that constrain a wider realm of what’s possible. We need to bring all our powers of reasoning to bear on understanding our place in the climate system. This upper-division climate course seeks to provide the inspiration and the fundamentals to take you there: as ocean/atmosphere trained earth scientists, ready for advanced study and research, environmental risk and consultancy, governance and other careers.

Statement on Academic Conduct and Support Systems

Academic Integrity

The University of Southern California is foremost a learning community committed to fostering successful scholars and researchers dedicated to the pursuit of knowledge and the transmission of ideas. Academic misconduct is in contrast to the university's mission to educate students through a broad array of first-rank academic, professional, and extracurricular programs and includes any act of dishonesty in the submission of academic work (either in draft or final form).

This course will follow the expectations for academic integrity as stated in the [USC Student Handbook](#). All students are expected to submit assignments that are original work and prepared specifically for the course/section in this academic term. You may not submit work written by others or "recycle" work prepared for other courses without obtaining written permission from the instructor(s). Students suspected of engaging in academic misconduct will be reported to the Office of Academic Integrity.

Other violations of academic misconduct include, but are not limited to, cheating, plagiarism, fabrication (e.g., falsifying data), knowingly assisting others in acts of academic dishonesty, and any act that gains or is intended to gain an unfair academic advantage.

The impact of academic dishonesty is far-reaching and is considered a serious offense against the university and could result in outcomes such as failure on the assignment, failure in the course, suspension, or even expulsion from the university.

For more information about academic integrity see the [student handbook](#) or the [Office of Academic Integrity's website](#), and university policies on [Research and Scholarship Misconduct](#).

Please ask me if you are unsure about what constitutes unauthorized assistance on an exam or assignment, or what information requires citation and/or attribution.

Collaboration. In this class, you are expected to submit work that demonstrates your individual mastery of the course concepts.

Group work. Unless specifically designated as a 'group project,' all assignments are expected to be completed individually.

Computer programs. Plagiarism includes the submission of writing or code written by, or otherwise obtained from someone else.

If found responsible for an academic violation, students may be assigned university outcomes, such as suspension or expulsion from the university, and grade penalties, such as an "F" grade on the assignment, exam, and the course.

Course Content Distribution and Synchronous Session Recordings Policies

USC has policies that prohibit recording and distribution of any synchronous and asynchronous course content outside of the learning environment.

Recording a university class without the express permission of the instructor and announcement to the class, or unless conducted pursuant to an Office of Student Accessibility Services (OSAS) accommodation. Recording can inhibit free discussion in the future, and thus infringe on the academic freedom of other students as well as the instructor. ([Living our Unifying Values: The USC Student Handbook](#), page 13).

Distribution or use of notes, recordings, exams, or other intellectual property, based on university classes or lectures without the express permission of the instructor for purposes other than individual or group study. This includes but is not limited to providing materials for distribution by services publishing course materials. This restriction on unauthorized use also applies to all information, which had been distributed to students or in any way had been displayed for use in relationship to the class, whether obtained in class, via email, on the internet, or via any other media. ([Living our Unifying Values: The USC Student Handbook](#), page 13).

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Students and Disability Accommodations:

USC welcomes students with disabilities into all of the University's educational programs. The Office of Student Accessibility Services (OSAS) is responsible for the determination of appropriate accommodations for students who encounter disability-related barriers. Once a student has completed the OSAS process (registration, initial appointment, and submitted documentation) and accommodations are determined to be reasonable and appropriate, a Letter of Accommodation (LOA) will be available to generate for each course. The LOA must be given to each course instructor by the student and followed up with a discussion. This should be done as early in the semester as possible as accommodations are not retroactive. More information can be found at osas.usc.edu. You may contact OSAS at (213) 740-0776 or via email at osasfrontdesk@usc.edu.

Support Systems:

[Counseling and Mental Health](#) - (213) 740-9355 – 24/7 on call

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

[988 Suicide and Crisis Lifeline](#) - 988 for both calls and text messages – 24/7 on call

The 988 Suicide and Crisis Lifeline (formerly known as the National Suicide Prevention Lifeline) provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week, across the United States. The Lifeline is comprised of a national network of over 200 local crisis centers, combining custom local care and resources with national standards and best practices. The new, shorter phone number makes it easier for people to remember and access mental health crisis services (though the previous 1 (800) 273-8255 number will continue to function indefinitely) and represents a continued commitment to those in crisis.

[Relationship and Sexual Violence Prevention Services \(RSVP\)](#) - (213) 740-9355(WELL) – 24/7 on call

Free and confidential therapy services, workshops, and training for situations related to gender- and power-based harm (including sexual assault, intimate partner violence, and stalking).

[Office for Equity, Equal Opportunity, and Title IX \(EEO-TIX\)](#) - (213) 740-5086

Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants.

[Reporting Incidents of Bias or Harassment](#) - (213) 740-5086 or (213) 821-8298

Avenue to report incidents of bias, hate crimes, and microaggressions to the Office for Equity, Equal Opportunity, and Title for appropriate investigation, supportive measures, and response.

[The Office of Student Accessibility Services \(OSAS\)](#) - (213) 740-0776

OSAS ensures equal access for students with disabilities through providing academic accommodations and auxiliary aids in accordance with federal laws and university policy.

[USC Campus Support and Intervention](#) - (213) 740-0411

Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

[Diversity, Equity and Inclusion](#) - (213) 740-2101

Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

[USC Emergency](#) - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call

Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

[USC Department of Public Safety](#) - UPC: (213) 740-6000, HSC: (323) 442-1200 – 24/7 on call

Non-emergency assistance or information.

[Office of the Ombuds](#) - (213) 821-9556 (UPC) / (323-442-0382 (HSC)

A safe and confidential place to share your USC-related issues with a University Ombuds who will work with you to explore options or paths to manage your concern.

[Occupational Therapy Faculty Practice](#) - (323) 442-2850 or otfp@med.usc.edu

Confidential Lifestyle Redesign services for USC students to support health promoting habits and routines that enhance quality of life and academic performance.

EEO-TIX Statement:

My priority as your professor is to ensure a safe, respectful education environment where all students can learn and thrive. The University does not tolerate any form of discrimination or harassment (including sexual assault, dating and domestic violence, stalking) based on protected characteristics (e.g., race, disability, ethnicity, sex, gender identity, sexual orientation, religion, pregnancy, etc.) or related retaliation (i.e., Prohibited Conduct). All faculty and Teaching Assistants are considered Designated Employees by the University, which means that if they observe or learn of Prohibited Conduct, they are obligated to immediately share that information with the University's Office for Equity, Equal Opportunity, and Title IX (EEO-TIX). This obligation, grounded in law and policy, is designed to protect the safety of students and the broader USC community, as well as ensure that students receive information about available supportive measures and resolution options to enable them to make informed choices. Supportive measures include reasonable academic accommodations available with or without the filing of a Formal Complaint.

If you need academic accommodations due to protected class discrimination, harassment, or related retaliation, you may:

- Contact EEO-TIX directly (eeotix@usc.edu or 213-740-5086), without sharing any personal information with me.
- If you would like to speak with a confidential counselor about sexual misconduct, [Relationship and Sexual Violence Prevention Services](#) (RSVP) provides 24/7 confidential support for students (213-740-WELL (9355), or 213-740-4900 and press 0 after hours).
- If you are a student with a disability and require reasonable accommodations to meaningfully participate in this course, please contact the University's Office of [Office of Student Accessibility Services](#) (OSAS) at your earliest convenience (OSASfrontdesk@usc.edu or 213-740-0776), as DSP is responsible for processing and approving such requests.
- If you are pregnant, have recently experienced childbirth, and/or have medical needs related to childbirth, please contact OSAS or EEO-TIX for assistance.
- Finally, if you need reasonable accommodations for a religious observance, please submit a request to me by email as far in advance as possible.

Accommodations do not relieve you of the responsibility for completion of any part of the coursework you miss as the result of a religious observance. If you have questions or concerns about your request, you may contact EEO-TIX.