COMMUNICATING CLIMATE CHANGE

Cross-listed between 16:460:611 and 11:375:415

Spring 2024

COURSE INSTRUCTOR AND CONTACT INFORMATION

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848-445-3442	510-289-8895

Instructors will respond to student inquiries within 3 business days

COURSE MEETING DAYS, TIMES, LOCATION, MODALITY

- Course will meet in-person on Wednesday afternoons
- Students are expected to attend all classes; if you expect to miss two or more classes, please reach out to us ahead of time. You can also use the University absence reporting website https://sims.rutgers.edu/ssra to indicate the date and reason for your absence. An email is automatically sent to us.

OFFICE HOURS / STUDENT SUPPORT HOURS

Student support hours are by appointment. If you have questions or concerns about the course or course material, email instructors to arrange for in-person or virtual meetings.

COURSE DESCRIPTION

For students interested in improving their ability to communicate climate change to audiences outside of academia. Instruction in inquiry-based science teaching methods and practice communicating scientific knowledge through individually developed science communication activities.

REQUIRED TEXTS AND COURSE MATERIALS

- Course will be run using Canvas: http://canvas.rutgers.edu
  (*For tech help with Canvas, please visit https://it.rutgers.edu/help-support*)
- All handouts and readings will be posted on Canvas

TECHNICAL / TECHNOLOGY REQUIREMENTS

No specific technology is required for this course, however, you may consider visiting the Rutgers Student Tech Guide website for general resources: https://it.rutgers.edu/technology-guide/students/#new-brunswick

If you do not have the appropriate technology for financial reasons, please email the Dean of Students at deanofstudents@echo.rutgers.edu for assistance. If you are facing other financial hardships, please visit the Office of Financial Aid: https://financialaid.rutgers.edu/.

LEARNING GOALS

Course Learning Goals

By fully participating in this course, you will be able to:

- Relate the need for understanding science and the scientific process for evidence-based decision making.
- Define the connection between science and social science expertise on science communication
- Show a greater understanding of the role of science and scientists.
- Improve the skills required for the public communication of science and for communicating science between scientists.

Department Learning Goals

Along with the overall course learning goals, this course also assists you in achieving the following Earth and Planetary Sciences Learning Goal:

- Improve scientific critical-thinking, writing, and oral-presentation skills

and the following Environmental Sciences Learning Goals:

- Communicate technical information effectively (orally, in writing, and through electronic media)
- Function effectively on teams to accomplish collaborative tasks

GRADING SCALE

Your final grade will be calculated using the following grading scale:

A = 89.5-100
B+ = 84.5-89.49
B = 79.5-84.49
C+ = 74.5-79.49
C = 69.5-74.49
D = 59.5-69.49
F = 0-59.49

In addition, the following warnings will be submitted according to university policy:
W1 = Warning for poor performance
W2 = Warning for poor attendance
W3 = Warning for poor performance and poor attendance

ASSESSMENT / GRADING COMPONENTS

- ***Class Participation (20%).*** Attend class, and participate in class discussions in class, quick writes. (see discussion rubric and class norms on CANVAS).
- ***2-Hour Observation (5%).*** (Individual Assignment) Observe interactions in a museum, aquarium or science center. Answer questions on handout sheet.
- ***Interaction Sessions (20%).*** (Partner assignment) Assist with an informal education program. Present **science activities** to middle school students and members of the general public with a partner.
- ***Activity Design Reflections (15%).*** (Individual assignment) Reflections on how your activity relates to learning and climate science material presented in class.
- ***Midterm (20%)*** (Individual assignment) A written test of your understanding of learning science and climate science content.
- ***Assessment / Evaluation Assignment (10%).*** (Partner assignment) You and your partner will create an evaluation plan to assess your activity presentations to the public and submit the plan and results of your evaluation in a 2-3 page write-up.
- ***Activity Reflection (10%).*** (Individual assignment) 2-3 page write-up of your impressions of how your activity went, incorporating peer feedback from class presentation. Re-visit activity design plan, making appropriate improvements.

POLICIES

Attendance and Participation

You are expected to attend all classes, if you expect to miss one or two classes, please use the University absence reporting website (https://sims.rutgers.edu/ssra) to indicate the date and reason for your absence. An email is automatically sent to me.

If you have a prolonged health and/or financial issues that impacts your academics and well-being over an extended period of time, contact the Dean of Students at deanofstudents@echo.rutgers.edu. The Dean of Students may provide me with a letter requesting flexibility.

Disability Accommodations
Many students have visible or invisible disabilities, and the University offers accommodations that allow them to achieve their full potential. The Office of Disability Services collaborates with all academic departments to arrange appropriate accommodations for students with disabilities, without compromising the academic integrity of the curriculum. If you have a documented disability or suspect you have an undocumented disability, contact them as early as possible in the term to find out what supports are available to you (https://ods.rutgers.edu).

ACADEMIC INTEGRITY POLICY

You have the potential to succeed in this course. Part of what will make you successful and help you achieve your academic goals is academic integrity. Academic integrity is the expectation that we will engage in academic activities honestly and ethically throughout the semester. Examples of academic integrity include, but are not limited to: properly acknowledging and citing the words and ideas of others, respecting your classmates and instructor, and avoiding dishonest behavior like cheating. The full University policy and other examples are available at http://academicintegrity.rutger.edu/academic-integrity-policy. Failure to uphold these principles of academic integrity threatens both the reputation of the University and the value of the degrees awarded to its students.

STUDENT SUPPORT AND MENTAL WELLNESS

Just In Case Web App http:s//codu.co/cee05e
Access helpful mental health information and resources for yourself or a friend in a mental health crisis on your smartphone or tablet and easily contact CAPS or RUPD.

Counseling, ADAP & Psychiatric Services (CAPS)
(848) 932-7884 / 17 Senior Street, New Brunswick, NJ 08901/ www.rhscaps.rutgers.edu/
CAPS is a University mental health support service that includes counseling, alcohol and other drug assistance, and psychiatric services staffed by a team of professional within Rutgers Health services to support students' efforts to succeed at Rutgers University. CAPS offers a variety of services that include: individual therapy, group therapy and workshops, crisis intervention, referral to specialists in the community and consultation and collaboration with campus partners.

Violence Prevention & Victim Assistance (VPVA)
(848) 932-1181 / 3 Bartlett Street, New Brunswick, NJ 08901 / www.vpva.rutgers.edu/
The Office for Violence Prevention and Victim Assistance provides confidential crisis intervention, counseling and advocacy for victims of sexual and relationship violence and stalking to students, staff and faculty.

OTHER INFORMATION

It is ok not to know or understand something, however, it is not ok not to do something about it. **Please see us *as soon as possible* with any difficulties or questions regarding the**

course materials. We will work together to ensure that you are successful. In addition, student affairs (http://studentaffairs.rutgers.edu/) is available for any needs or concerns.

COURSE OVERVIEW

Date	Topic
Part I	***Foundational science & How people learn***
Week 1 Jan 17	***Science*:** Disproportionate impacts of climate change ***Learning*:** Introduction to Climate Literacy ***Activity*:** Climate science concept map ***Reading***: • Read *Madhouse* Chapter 1; • Listen to (or read transcript) Anthony Leiserowitz podcast • Browse Climate Literacy: The Essential Principles of Climate Science ***Assignment*:** • Reading/podcast quiz • Complete your own Climate Change Concept map
Week 2 Jan 24	***Science*:** Greenhouse effect & Blackbody radiation ***Learning*:** Nature & Practices of science ***Activity*:** Greenhouse in a bottle (Outreach activity) ***Reading***: • *Madhouse* Chapter 2 • Spencer Weart's chapter "The Carbon Dioxide Greenhouse Effect" • IPCC (2013) 5th Assessment Report Summary for Policymakers, pp. 4-10 • NYT How Decades of Racist Housing Policy Left Neighborhoods Sweltering • Fenichel, Chapter 2 Science and Science Learning • **Explore the UCMP Understanding Science website**. Visit the UCMP Understanding Science website http://undsci.berkeley.edu, and explore, including the Misconceptions about Science page http://undsci.berkeley.edu/teaching/misconceptions.php.

	Assignment: • Reading quiz • *Combining Anecdotal Evidence with Data* activity
Week 3 Jan 31	***Science*:** Thermal inertia & sea level rise ***Learning*:** How People Learn ***Activity*:** Sea level rise activity (Outreach activity) ***Part A.*** How People Learn and Sea Level Rise 1) Sea Ice vs. Land Ice (glacier) investigation 2) Warming water investigation **Part B.** Click on "Risk Zone Map," then explore any area you are interested in Go to: https://riskfinder.climatecentral.org/ ***Reading***: • Sweet, W.V., R. Horton, R.E. Kopp, A.N. LeGrande, and A. Romanou, 2017: Sea level rise. In: Climate Science Special Report: Fourth National Climate Assessment, Volume I [Wuebbles, D.J., D.W. Fahey, K.A. Hibbard, D.J. Dokken, B.C. Stewart, and T.K. Maycock (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, pp. 333-363, doi: 10.7930/J0VM49F2. • Schwartz, J., "Under Water", Scientific American, p. 36-47 (Summer, 2020). ***Explore:*** • Investigate the Sea Level Rise viewer (https://coast.noaa.gov/slr/) and https://riskfinder.climatecentral.org/ ***Reading:*** • *How People Learn II* Chapters 2 and 5 ***Assignment:*** • Reading quiz
Week 4	***Science*:** Carbon cycle

Feb 7	***Learning*:** Designing learning experiences ***Activity*:** Carbon cycle game (Outreach activity) ***Reading***: • Fenichel Chapter 4: Learning from others • NYT: Every place has its own risk… • National Climate Assessment 4 (NCA4) Vol 1, Climate Science Special Report (2017): Ch 2 Physical Drivers of Climate Change • *If interested: Houghton Ch 3 pp 34-57 (more in depth Carbon Cycle)* ***Assignment*** • Reading quiz • Calculate your Carbon Footprint
Week 5 Feb 14	***Science*:** Ocean acidification ***Learning*:** Learning conversations ***Activity*:** Ocean acidification (Outreach activity) ***Reading***: • Jewett and Romanou, Ocean Acidification and Other Ocean Changes , Ch 13 in: Climate Science Special Report: Fourth National Climate Assessment Vol I (2017) relevant sections • Dixson, D., Lost at Sea, *Scientific American*, p. 64-67 (2020) • White, N., Ocean Acidification: The other Climate Change Issue, *Scientific American*, p. 60-63 (2014) • Watch Katherine Hayhoe Ted Talk • Listen to Liz Neeley interview on NPR ***Assignments*** • Reading quiz
Week 6 Feb 21	***Midterm*** Covering Learning Science and Climate Science

Part II	***Science communication to a broad range of audiences***
Week 7 Feb 28	***Learning*:** Science and Culture ***Activity:*** Investigating the influence of culture on the practice of science, sentence strip sorting, consensus building ***Sign up:*** for Activities at End of Class ***Reading***: • Hoffman, How Culture Shapes the Climate Change Debate, Chapters 1-2 • Mann and Toles, The Madhouse Effect, Ch. 4 ***Assignments***: • Reading quiz • Content concept map: Create individual content concept map for your activity • Record your questions about the activity (design and content)
Week 8 Mar 6	***Learning*:** Behavior Change ***Activity:*** Investigating what needs to happen to affect change in human behavior ***Reading***: • Hoffman, Chapter 3, Madhouse, Ch. 5 on sources of disinformation ***Assignments***: • Reading quiz • Get ready to present activity to peers
SPRING BREAK	

Week 9 Mar 20	**Science**: Varies by science activity **Activity**: Present activities to peers ***Assignment***: • Write up reflections on presentations and post to Canvas
Week 10 Mar 27	**Conversation Lab** We invite middle school students to our classroom and present our science activities. Instructors and other science educators will observe your interactions and provide feedback on your use of the tools we have learned in this class so far. ***Assignment***: • Write up reflections on your experience and response to observation • Start making YouTube video (due Week 12)
Week 11 Apr 3	**Learning:** Difficult Audiences **Activity:** work through scenarios in communicating with difficult audiences ***Reading:*** • "The Psychology of Climate Change Communication" by the Center for Research on Environmental Decisions. ***Assignment***: • Reading Quiz
Week 12 Apr 10	**Learning:** Learning design **Activity:** Present YouTube video to peers for critique ***Assignment***: • Write response to critiques of your presentation, revise video
Week 13	**Wrap Up:** Decision Making & Revisit science & learning content

Apr 17	**Activity:** Climate Collage, logistics for Rutgers Day
Week 14	**Rutgers Day: SATURDAY** Present climate change activities at Rutgers Day on Rutgers Campus ***Assignment*** Revise your concept map on climate change
No Final Exam	