AS.270.130 Freshman Seminar: Communicating Climate Science

Fall Term 2021

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Zoom PMI: 357 055 3753
Office Hours: By request
Class meetings: W 3:00p in Olin 304

Course Description: This course is a study of techniques used to effectively communicate scientific knowledge with a focus on climate science. This will be done with three overarching topics: comprehending technical content from approachable sources, critically interpreting science news from the media, and communicating complex climate science to a general audience. Although this course does not have any explicit prerequisites, it is oriented towards science and engineering majors in its discussion of technical material.

Required Texts: Students are expected to obtain a copy of the listed book

- *Houston, We Have a Narrative* by Randy Olson, 2015 (purchase new for $17.43)

Learning Objectives: By completion of this course, the student will demonstrate the ability to

1. Interpret and discuss communication of technical content
2. Critically analyze implications of scientific conclusions
3. Evaluate media's portrayal of major scientific developments
4. Critique effectiveness of the scientific community to present conclusions
5. Effectively communicate a complex climate topic to a general audience

Assessments:

Student-led Discussions. Each week the class will participate in discussions of assigned media content (i.e. articles, documentaries, podcasts, etc). Students will take turns leading these discussions, but their participation will be assessed continually.

Critical Thinking Exercise. In the sixth week of the course, students will complete an exercise in class that applies critical thinking to scientific studies. More details on this exercise will be provided at a later date.

Media Sources Paper. Students will find a news report of a scientific study and perform research on the sources behind that report. In a short 1-2 page paper due in the fourth week, students will assess the validity of the conclusions presented in the report by citing those primary sources. A rubric for this paper will be provided.

Detailed Critique. Students will critique and compare the effectiveness of scientists' communication to the public, detailing what techniques were effective and how it might have been improved. This will be written in a short 1-2 page paper due in the eighth week of the course, A rubric for this paper will be provided.

Culminating Communications Project (CCP). The major project, designed to utilize tools discussed through the semester, will be for students in assigned groups of 2-3 to choose a complex climate topic and develop a media of their choice (presentation, video, podcast, etc) to explain that topic and its implications to the general public. This project will be the focus of the last third of the course and will have a total of three progress deadlines, a rubric for each deadline will be provided.

Grading Policy: This course will implement *specifications grading*, a form of grading that is competency-based and evaluates students given their accomplishment of the specified learning objectives listed above. The standard for achieving each learning objective is high, but expectations to attain each achievement will be explicitly stated. The details of specifications grading are:

All assignments are graded as either satisfactory or unsatisfactory. Rubrics will be provided to ensure clear expectations, specifying what is required to receive a satisfactory grade for each assignment. For discussion-based lessons, satisfactory grades are awarded to those who demonstrate enthusiastic participation and regular attendance.

Students are given three tokens that provide opportunities to revise an assignment that was unsatisfactory, or turn in an assignment late without penalty. The tokens may be applied to any of the assignments excluding the student-led discussions and the final deadline for the Culminating Communications Project in which groups present their work.

Letter grades at the end of the semester are set by the number of assignments a student achieves at

<table>
<tr><th></th><th>A</th><th>B</th><th>C</th></tr>
<tr><td>Assignments (# total):
Learning Objective</td><td colspan="3">Outcomes Required for Grade Bundle</td></tr>
<tr><td>Student-led discussions (11)
Objective 1</td><td>Satisfactory:
as leader (1),
as participant (9),
no more than
1 absence</td><td>Satisfactory:
as leader (1),
as participant (8),
no more than
2 absences</td><td>Satisfactory:
as leader (1),
as participant (7),
no more than
3 absences</td></tr>
<tr><td>Critical thinking exercise (1)
Objective 2</td><td>Satisfactory</td><td rowspan="3">Two out of
three objectives
satisfactory</td><td rowspan="3">One out of
three objectives
satisfactory</td></tr>
<tr><td>Media Sources Paper (1)
Objective 3</td><td>Satisfactory</td></tr>
<tr><td>Detailed Critique (1)
Objective 4</td><td>Satisfactory</td></tr>
<tr><td>Communications Project (1)
Objective 5</td><td>Satisfies Standards</td><td>Satisfies Standards</td><td>Approaches Standards</td></tr>
</table>

the satisfactory level, according to the grade bundles in the table above.

If a student's work falls between two grade bundles, plus or minus grades will be granted as follows:

- A+ All requirements for the A bundle *plus* the communications project was exceptional
- A- All requirements for the A bundle *except* attendance and/or participation in discussions is slightly lagging OR communications project approaches standards
- B+ All requirements for the B bundle *plus* exceptional attendance/participation in discussions
- B- All requirements for the B bundle *except* communications project was approaching standards
- C+ All requirements for the C bundle *plus* exceptional attendance/participation in discussions OR two of objectives 3-5 are satisfactory
- C- All requirements for the C bundle *except* attendance and/or participation in discussions is slightly lagging

As achievement of learning objectives are assessed on a satisfactory basis, a student who fails to meet the qualifications of a C grade will fail the course. Assigning grades of D or D+ will only be considered in extenuating circumstances.

Attendance: It is expected that students will be present at all Wednesday class sessions as it is crucial to their overall success in the course. If for any reason a student is unable to be present in-person, they may attend virtually via zoom assuming reasonable cause. Reasonable cause includes but is not limited to; a positive Covid-19 test, known exposure to someone who has tested positive for Covid-19, symptoms commonly associated with Covid-19, or travel related to family health concerns. If a student is unable to attend in-person or virtually, they must notify the instructor of their excused absence in advance of that class and are still responsible for any content they may have missed. Monday class sessions will be considered workshops oriented towards the absorption of media content. As such, students may choose to complete Monday's assignments in-person or on their own time. If the student chooses to come to Monday's workshop in-person, they must notify the instructor in advance, by the end of the Friday before.

Recorded Lectures: Technical lectures will be pre-recorded and assigned on specific weeks. It is expected that students watch the lectures by the Wednesday of the week they are assigned.

Academic Integrity: It is expected that all students at Johns Hopkins University uphold academic and personal integrity above reproach. Ethical violations, including but not limited to, cheating, plagiarism, lying, dishonesty, falsification, alteration, will not be tolerated in this course. Collaboration among students is encouraged, but all work submitted must be completed solely by the individual, excluding projects that are group based.

Disabilities: Students with disabilities may be granted appropriate accommodations after registering with the Student Disability Services. If you think you may require accommodations, please contact the Student Disability Services at (410) 516-4720, studentdisabilityservices@jhu.edu, or in-person at Shaffer Hall 103. More information is available at https://studentaffairs.jhu.edu/disabilities/.

Course Outline:

	Topic	**Media Content**	**Lecture**	**Assessment**
30-Aug-2020	Narrative in Science	Website: MIT Climate Primer (3)		Discussion
6-Sept-2020	Stakeholders	Book: *What the Eyes Don't See (7)*	Aspiration	Discussion (JN)
13-Sept-2020	Data Interpretation	Podcast: *Cautionary Tales* (6) Text: Intro (10)		Discussion (DT)
20-Sept-2020	ABT Variations	Video: Katharine Hayhoe (8)	Growth	Discussion (GC) Due: media sources paper
27-Sept-2020	Interpreting Uncertainty	Letter: Carl Wunsch Response (13)	Fallibility	Discussion (RD)
4-Oct-2020	Critical Analysis	Documentary: *Before the Flood* (1) Text: Thesis (10)		Discussion (AD) Critical thinking exercise
11-Oct-2020	Comparison and Critique	Documentary: *An Inconvenient Truth* (9) Text: Antithesis I (10)		Discussion (CF)
18-Oct-2020	Simplifying Complexity	Book: Jet Stream (12)	??	Discussion (FM) Due: detailed critique
25-Oct-2020	The Dobhansky Template	Poetry: Text: Antithesis II (10)		Discussion (AM)
1-Nov-2020	A Hero's Journey	Video: James Hansen (5)	??	Discussion (LN) CCP deadline 1: choose topic
8-Nov-2020	Ordinary World, Special World	Documentary: *Beyond the Curve* (2) Text: Synthesis (10)		Discussion (LP) CCP deadline 2: submit outline
15-Nov-2020	Story Circles			
22-Nov-2020		*Thanksgiving Break*		
29-Nov-2020	Science and Policy	Article: "Usable Climate Science is Adaptation Science" (11)	Endeavor	Discussion (NS)
6-Dec-2020	Demonstrating Narrative			CCP deadline 3: present

References

(1) *Before the Flood.* Directed by F. Stevens, narrated by L. DiCaprio. National Geographic Documentary Films, 2016.

(2) *Beyond the Curve.* Directed by D. Clark. Delta-V Productions, 2018. *Netflix*

(3) K. Emanuel *Climate Science and Climate Risk* Massachusetts Institute of Technology, 2019. https://climateprimer.mit.edu/

(4) "Gavin Schmidt: The emergent patterns of climate change." *YouTube*, uploaded by TED, 1 May 2014, https://www.youtube.com/watch?v=JrJJxn-gCdo&ab_channel=TED

(5) "James Hansen: Why I must speak out about climate change" *YouTube*, uploaded by TED, 7 March 2012, https://www.youtube.com/watch?v=fWInyaMWBY8&ab_channel=TED

(6) "Florence Nightingale and Her Geeks Declare War on Death." *Cautionary Tales* from Pushkin Industries, 3 March 2021. https://timharford.com/2021/03/cautionary-tales-florence-nightingale-and-her-geeks-declare-war-on-death/

(7) M. Hanna-Attisha. *What the Eyes Don't See: A story of crisis, resistance, and hope in an American city,* Chapter 11. One World, 2019

(8) K. Hayhoe. "If I just explain the facts, they'll get it, right?" *YouTube*, uploaded by Globaly Weirding with Katharine Hayhoe, 18 January 2017, https://www.youtube.com/watch?v=nkMIjbDtdo0&ab_channel=GlobalWeirdingwithKatharineHayhoe

(9) *An Inconvenient Truth.* Starring A. Gore, directed by D. Guggenheim. Paramount Classics, 2006

(10) R. Olson. *Houston, We Have a Narrative: Why Science Needs Story.* University of Chicago Press, 2015

(11) A.H. Sobel. "Usable climate science is adaptation science." *Climate Change* 166.1 (2021): 1-11

(12) T. Woollings. *Jet Stream.* Oxford University Press, 2020

(13) C. Wunsch. "Partial Response to the London Channel 4 Film 'The Great Global Warming Swindle'." *Carl Wunsch* 11 March 2007. http://ocean.mit.edu/~cwunsch/papersonline/responseto_channel4.pdf

Zoom Invite: AS.270.130 Freshman Seminar: Communicating Climate Science
Time: Wednesdays 03:00 PM Eastern Time (US and Canada)
Every week on Wed, until Dec 6, 2020, 13 occurrence(s)

Join Zoom Meeting
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103.122.166.55 (Australia Sydney)
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209.9.211.110 (Hong Kong SAR)
64.211.144.160 (Brazil)
69.174.57.160 (Canada Toronto)
65.39.152.160 (Canada Vancouver)
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