

Communicating Science (and Technology) Policy

BIOETHIC 606

Mondays from 1:45-4:15

Gross Hall 105

Professor Caplan's Office: Sanford 111

Office Hours: By appointment (email Robyn.Caplan@duke.edu)

This is a special topics class cross-listed between the Center for Science and Society and the Sanford School of Public Policy. The purpose of this course is to teach students the theory and principles of communicating science policy for expert and non-expert audiences. Students will learn about the broader context for the role of communication in science and technology policy, as well as theories of/for communication. Students will be taught practical communication skills, with an emphasis on communicating for different audiences, and in different formats. This is a project-driven class. Students are expected to come to the class with a project/idea, that will be transformed into a variety of communicative outputs. This course includes built-in opportunities to create, and practice written and oral communication for diverse audiences, with opportunities for professor and peer feedback.

By the end of the course, students are expected to be able to:

- Identify the essential message that defines your research/topic.
- Recognize and identify a diversity of audiences (and how to reach them).
- Develop an understanding of the theories of communication (why we communicate broadly), and the challenges of communicating complex concepts to broad audiences.
- Develop subject-level expertise that reflects the student's own professional interests and goals. • Produce a research primer that will be used by the student which will be 'translated' into various outputs in/outside of class time.

The course will include:

- Lectures on theories of communication in science and technology policy, in addition to guest speakers who will be sharing their expertise on a particular communicative format/topic.
- Improvisational exercises.
- Opportunities to receive feedback on work.
- Opportunities to give peer feedback and engage with other students.

Course Requirements

Attendance and participation	25%
Topic proposal	Ungraded
Backgrounder/primer/white paper	30%
Outputs (5 pts each)	15%
Presentation	10%

Edited outputs (pick two and revise)	20%
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Assignments

Attendance and participation in class discussion: This class is primarily participation/discussion-focused and includes several guest lectures. Students will be graded on their preparedness for class, and their engagement with guest lectures. Laptop use is discouraged during guest lectures.

Topic Proposal: In the week of January 20th, each pair of students will schedule a 15-minute meeting with Professor Caplan to discuss their topic proposal for the semester.

Backgrounder/Primer/White Paper (8 pages): Each pair of students are responsible for putting together a backgrounder or white paper that they will be translating in the last third of the semester towards different outputs. A white paper/backgrounder is an informational brief that will offer an overview of a technology, issue, standard, or policy. It can take various forms, but your version should include an executive summary, an introduction and background of your issue and an overview of the “problem,” a summary of existing research on the topic (literature review) and the identification of direct and indirect stakeholders, possible solutions, and (potentially) recommendations. **The deadline for the white paper is March 7th.**

Outputs: Students are responsible for producing 3 “outputs” during in-class exercises. These include (1) The elevator pitch and a one-pager; (2) The Op-Ed; and (3) Stakeholder analysis and event plan (who to invite). These will largely be done in class with the final output delivered to me at the end of class. These will be graded based on completion but are largely just an opportunity for feedback.

Edited Output: Students will take two outputs and “revise” them based on feedback given by Professor Caplan and the class. Deadline for the revised outputs is **April 28**.

Readings

There are no required books for this course. Rather students will be responsible for reading articles, and familiarizing themselves with examples of communicative outputs that will be supplied by Professor Caplan and our guest lectures. Below is a draft schedule of the readings (but please check Canvas for final readings the week before class).

Late Assignments

All written assignments will be penalized 10 percentage points for each 24-hour late period. (*Note: a written assignment turned in immediately after the class period in which it is due is considered within the initial 24-hour late period and is thus deducted 10 percentage points*). Presentations that are not presented at the class period due will be penalized 20 percentage points for each late class period.

Grade Appeals

All students must submit appeals for grades in writing. If you'd like to improve your grade on a written assignment, you may have the opportunity to resubmit the writing (I believe in edits and version 2s). This opportunity is open for all projects except the final project. However, you will have many opportunities to meet with me throughout the semester to get feedback, so please take these opportunities.

Equity

In this course we will be committed to being a safe and welcoming atmosphere for all. We will value the broad spectrum of human experience and work to create an open atmosphere with meaningful opportunities to learn.

The Sanford School of Public Policy and the DeWitt Wallace Center, which hosts this course, have pledged to follow the [Sanford Collective Action Plan](#), developed in the summer of 2020 to fight social bias, discrimination and racism. The values and goals reflected in this document will shape both the content and conduct of this course to ensure that we learn together as a community that embraces all its members, respects and affirms each of our personal identities, and recognizes and responds to the structural racism and inequality that has shaped us and our academic and professional fields.

Duke Community Standard

In this course, students abide by the Duke Community Standard.

The [Duke Community Standard](#) states:

“Duke University is a community dedicated to scholarship, leadership, and service and to the principles of honesty, fairness, respect, and accountability. Citizens of this community commit to reflect upon and uphold these principles in all academic and nonacademic endeavors, and to protect and promote a culture of integrity.

“To uphold the Duke Community Standard: I will not lie, cheat, or steal in my academic endeavors; I will conduct myself honorably in all my endeavors; and I will act if the Standard is compromised.”

Plagiarism (either intentional or unintentional) is in violation of the Community Standard.

ChatGPT Policy

In this class, we acknowledge the growing role of AI tools, such as ChatGPT, in educational and professional contexts. These tools can assist in brainstorming, research, and other tasks when used appropriately. However, it is necessary to maintain integrity and transparency in their use. Students may use ChatGPT for brainstorming, finding starting points for research, and for organizing (initial) thoughts. Students **are not allowed** to use ChatGPT to write assignments, or to bypass engaging with the reading material (but it can be used for learning support – such as explaining a concept). It is important to remember that ChatGPT is a helpful tool but is often wrong. It often produces inaccurate

information. The only way to know when/if that material is inaccurate, is to get the education yourselves, and to ask ChatGPT for its sources (and then go read those sources!). AI should always be used as a starting point (i.e. to aid in your thinking), and **never** an end-point. The usefulness of AI is in the space between AI and you – i.e. the interaction – and in its ability to push your learning further and deeper (by sending you to the sources it uses, so you can check their accuracy). Please do not waste your time (and money) to educate and train AI, and not yourself.

Clearly indicate if and how you used ChatGPT or similar tools in your work with a note such as “I used ChatGPT for examples of X to help me brainstorm.”

Mental Health/Wellness Statement

The past few years have had an impact on us and our friends and families. Each of us is affected in different and often personal ways. I want to be here for you as you navigate the capstone course this fall under different circumstances than we may have expected. To that end, I offer the following:

- If you would like, I am here to be a listening ear
- You don't “owe” me any information you don't want to share
- If you tell me you have concerns or are struggling, I will do whatever I can to be flexible
- I hope you will extend to me similar patience and flexibility

About the Instructor

Robyn Caplan (PhD., Rutgers University) is an Assistant Professor at the Sanford School of Public Policy, a Senior Lecturing Fellow in Science & Society, a Faculty Affiliate at the DeWitt Wallace Center for Media & Democracy, a Research Affiliate at Data & Society Research Institute and an Affiliate with Center for Information Technology and Policy at UNC-Chapel Hill. She received her PhD from the School of Communication and Information at Rutgers University. She conducts research at the intersection of platform governance and media policy. Her research examines the impact of inter-and-intra-organizational behavior on platform governance and content moderation.

Caplan's work has been published in journals such as *International Journal of Communication*, *Social Media + Society*, *First Monday*, *Big Data & Society*, and *Feminist Media Studies*. Her work has been featured by publications like *The Washington Post*, *The New York Times*, *Wired*, *NBC*, and *Al Jazeera*. She has conducted research on a variety of issues regarding data-centric technological development on society.

COURSE OVERVIEW

Part 1: Theories of Communicating Science

Week 1 - Jan 8: Introductions

- Monday classes take place on **Wednesday**
- Today we will learn about each other, our interests, and the plan for the semester.
- What is a “white paper?”
 - Executive summary
 - Description of problem
 - Introduction/Background
 - Possible Solutions
 - Citations
- **Class Discussion and readings:**
 - Nature (2020). Episode 1: Stick to the science: ‘When science gets political. (Podcast): <https://www.nature.com/articles/d41586-020-03067-w> [
 - Bonus: Listen to Episodes 2 and 3

Week 2 - Jan 13: Why do we communicate about science and technology?

- **Read:**
 - Shapin, S. (2020). “Science and the Public” in *Companion to the History of Modern Science*. Routledge. https://scholar.harvard.edu/files/shapin/files/shapin_science_public.pdf
 - Kuritz, Hyman. (1981). “The Popularization of Science in Nineteenth-Century America.” *History of Education Quarterly*, 21(3): p. 259-274
 - Lewenstein, B.V. (1992). “The meaning of ‘public understanding of science’ in the United States after World War II.” *Public Understanding of Science*, 45-68. <https://journals.sagepub.com/doi/10.1177/016224399502000201>
- **Watch:**
 - Benjamin Franklin’s Endlessly Quotable Poor Richard’s Almanac, *PBS*. <https://www.pbssocal.org/shows/benjamin-franklin/clip/franklins-endlessly-quotable-poor-richards-almanack-kakevf>
- **Discussion:**
 - Why do we communicate science to the public?
 - What is the relationship between communication and ‘understanding’ in relation to “the public?”
 - How should we understand the popularization of science within the context of American culture/history?
- **Exercise:**
 - Speed dating for white paper topics

Week 3: Jan 20

Class canceled (Martin Luther King Day): Topic proposal zooms end of week.

Week 4: Jan 27 - Science and Democracy

- Read

- Collins, H.M. and Evans, R. (2002). "The Third Wave of Science Studies: Studies of Expertise and Experience." *Social Studies of Science*, 32(2): 235-296.
- Jassanoff, S. (2003). "Technologies of Humility: Citizen Participation in Governing Science." *Minerva*, 41: 223-244.
- Class workshop: Project Proposal

Week 5 - Feb 3: Models of Scientific Communication [PROPOSAL DUE]

- Read:
 - Wynne, B. (1991). [Knowledge in Context](#). *Science, Technology & Human Values*, 16(1): 111- 121.
 - Bucchini, M. (2008). [Of deficits, deviations, and dialogues: Theories of public communication of science](#). *Handbook of public communication of science and technology*. Routledge: 71-90.
 - Reincke, C., Bredenoord, A., and van Mil, M. (2020). [From deficit to dialogue in science communication](#). *EMBO*, 21(9).
 - Ihlen, O. (2020). ["Science communication, strategic communication and rhetoric: the case of health authorities, vaccine hesitancy, trust and credibility."](#) *Science and Strategic Communication*.
- Bonus:
 - Wynne, B. (1992). "Misunderstood Misunderstanding: social identities and public uptake of science. *Public Understanding of Science*: 281-304.
<https://www.dourish.com/classes/readings/Wynne-Misunderstood-PUS.pdf>
- Discussion:
 - How have models of science communication shifted over time?
 - How do we build trust/trustworthiness in science and science communication? - How do we address the gap between the slowness of science, and the speed of public crises?
- Exercise: The Problem of Time in Science Communication
 - Case Study: COVID-19 (Please glance at these but you do not have to read in-depth before class)
 - Roberts, S. (2020). "Embracing the Uncertainties." *The New York Times*.
<https://www.nytimes.com/2020/04/07/science/coronavirus-uncertainty-scientific-trust.html>
 - Clark, J. (2023). How Covid-19 Bolstered an Already Perverse Publishing System. *BMJ*. <https://www.bmj.com/content/380/bmj.p689>
 - Redden, E. (2020). Rush to Publish Risks Undermining Covid-19 Research. *Inside Higher Ed*.
<https://www.insidehighered.com/news/2020/06/08/fast-pace-scientific-publishing-covid-comes-problems>

Week 6 – Feb 10: Alternative (but should we call them that?) approaches

- Read:
 - Finlay, S., Raman, S., Rasekoala, E., Mignan, V., Dawson, E., Neeley, L., and Orthia, L.A. (2020). [From the margins to the mainstream: deconstructing science communication as a white, Western paradigm](#). *Journal of Science Communication*,

- 20(1): 1-12.
- Canfield et al., (2020). [Science Communication Demands a Critical Approach that Centers Inclusion, Equity, and Intersectionality](#). *Frontiers in Communication*, 5(2). 1-12.
- Lewenstein, B. (2019). The Need for Feminist Approaches to Science Communication. *JCOM*, 18(04).
https://jcom.sissa.it/article/pubid/JCOM_1804_2019_C01/
- Discussion:
 - How is power produced/reproduced through science communication?
 - What voices have been heard/not heard within science communication, and how can we change that?

Part 2: Scientific Storytelling

Week 7 – Feb 17: The Principles and Practices of Translation

- Read (and listen)
 - Callon, M. (1984). Some Elements of a Sociology of Translation: Domestication of the Scallops and the Fisherman of St. Brieuc Bay. *The Sociological Review*.
<https://journals.sagepub.com/doi/10.1111/j.1467-954X.1984.tb00113.x>
 - Freeman, R. (2009). “What is ‘Translation?’” *Evidence and Policy*, 5(4), p. 429-447.
https://www.pure.ed.ac.uk/ws/files/15465732/2009_What_is_Translation.pdf
 - Translation: Interview with Dr. Phil Crocket Thomas on the Just Humans Podcast.
<https://open.spotify.com/episode/1zTMNqxxqAHvWkAEJk6YOf> [PODCAST]
- Discussion: Defining the boundaries of our issue/topic
 - Who/what counts as an actor with interests?
 - What is “translation?” What are we doing in the act of translating science to policy?
 - What is lost in our efforts to capture and communicate knowledge in particular ways?
 - Does all research involve translation?

Week 8 – Feb 24: The Science of Stories

- Guest Lecture: Adam Banicki, Head of Video, Fortune Magazine
- Read (and watch):
 - Jones, M.D. and Crow, D.A. (2017). How can we use the ‘science of stories’ to produce scientific stories? *Palgrave Communications*, 3(53).
<https://www.nature.com/articles/s41599-017-0047-7>
 - Thornton, J. (2022). TikTok for Physics: Influencers Aim to Spark Interest in Science. *Nature*. <https://www.nature.com/articles/d41586-022-00680-9>
 - Other videos recommended by Adam Banicki TBD
- Exercise:

- Bring an example of short-form video or audio on the topic of science and technology. Be prepared to discuss what is compelling about the storytelling.

Week 9 – March 3: Experimental Story-Telling:

- Guest Lecture: Surya Mattu, data journalist, engineer, and artist, and lead of Digital Witness Lab at Princeton University
- Readings TBD
- In-class work period

[WHITE PAPER DUE MARCH 7th]

Week 10 – March 10: SPRING BREAK

Week 11 – March 17: Thinking about Audiences

- Guest Lecture: Sam Hinds, Director of Communications at Berkman Klein Center for Internet and Society, Harvard University
- Read:
 - Nature. Communication for Scientists: Unit 1.
<https://www.nature.com/scitable/ebooks/english-communication-for-scientists14053993/118519407/>
 - Longnecker, N. (2023). Good Science Communication Considers the Audience. https://link.springer.com/chapter/10.1007/978-3-030-91628-2_3#:~:text=There%20is%20no%20universal%20%E2%80%9Caudience,the%20objective%20of%20the%20communication.
 - Additional readings from Sam Hinds, TBD

In-Class Workshops

Week 12 – March 24: The One-Pager and the Elevator Pitch

- The elevator pitch: A brief (30 seconds) way to introduce yourself and your interests.
 - What makes a good elevator pitch? Please bring a two-minute extended elevator pitch about your project. We will work as a class to bring them down to 30 seconds-1 minute (!).
 - We will focus on identifying necessary/unnecessary information.
- Question to orient our discussion: What are other contexts where we can imagine needing a short pitch? How do we adapt our pitch to other settings? (example: the networking event, the dinner, to a potential mentor etc.)
- Readings and Resources (all incredibly short):

- Izumi et al. (2010). “[The One-Pager: A Practical Policy Advocacy Tool for Translating Community-Based Participatory Research into Action](#). *Progress in Community Health Partnerships: Research, Education, and Action*, 4(2): 141-147.
- Bennett, G., and Jessani, N. (2022). “The Two-pager: Writing a Policy Brief.” <https://sk.sagepub.com/book/edvol/the-knowledge-translation-toolkit/chpt/twopager/writing-policy-brief>
- DC Policy Shop – Writing an Effective Advocacy Paper https://dcpolicyshop.com/lobbying-101/the-one-pager-writing-an-effective-advocacy-paper/?utm_source=chatgpt.com
- Princeton Careers – The Elevator Pitch: https://careerdevelopment.princeton.edu/sites/g/files/toruqf1041/files/media/elevator_pitch.pdf
- Erin McGoff on TikTok - <https://www.tiktok.com/@erinmcgoff/video/6953323924922879238>

Week 13 – March 31: The Op-Ed

- Task: Please bring an example of an op-ed that you think works well/does not work well and come prepared to explain it.
 - Potential sources for op-eds on science and technology-related topics (please feel free to branch out):
 - Scientific American – Opinions: <https://www.scientificamerican.com/section/opinion/>
 - NYTimes – Opinions (Technology) <https://www.nytimes.com/section/opinion/technology>
 - Slate – Future Tense <https://slate.com/technology/future-tense>
- To Read/Glance at:
 - The Op-Ed Project - Op-Ed Writing: Tips and Tricks: <https://www.theopedproject.org/resources>
 - The Op-Ed Project – Pitching: <https://www.theopedproject.org/pitching>
- For funsies:
 - Op-Eds from the Future: The NYTimes: <https://www.nytimes.com/spotlight/future-oped>

Week 14 – April 7: The Event – Communicating with policymakers (and other stakeholders)

- Overview:
 - What is an event you can hold to align different stakeholders on your issue/policy recommendations? Who would need to be invited to this event? Should this event have a speaker?
- In-Class Workshop:
 - Professor Caplan will give you a few examples of an event and guideline budgets. You will work in your team pairs to develop a concept for an event (is this a conference, workshop, roundtable, brown bag lunch, etc.), including a keynote speaker (if you need one), a location, a loose budget (is this just a talk? Will it have a cocktail party? Is there food?).

- Identify 3-5 individuals/organizations you can partner with that have a similar agenda, goals for the event (what do you want to accomplish?), and what you might consider a successful outcome (making people think differently/adjust their frame? Bringing diverse stakeholders together? Achieving a policy outcome?)
- How do you promote the event?
- Resources:
 - Stafford, H., and Brown, A. (2023). “Communicating Science to Policymakers: Six Strategies for Success.” *Nature*. <https://www.nature.com/articles/d41586-019-02372-3>
 - Foell, J. (2021). Social media science communication is a nonstop academic conference for all. *Nature human behavior*; 5(812).
<https://www.nature.com/articles/s41562-021-01138-0>

Week 15 – April 14: Project Presentations

- Details TBD