

Syllabus

Course Information

Course Number: VIBS 657
Course Title: Issues in Science and Technology Journalism
Section: 600
Time: Wednesdays, 8:45-11:30 am
Location: VID1 121
Credit Hours: 3

Instructor Details

Instructor: Yasha Hartberg, B.S., M.S., Ph.D.
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Office Hours: To set up an appointment, first consult the link to my appointment calendar on Canvas. If none of those times work, feel free to email me to see if I have other times we can meet. Note that the default for meetings will be via Microsoft Teams. However, I'm *very* happy to meet face-to-face, too. Just let me know your preference in advance.

Course Description

Welcome to VIBS 657! This course serves as a gateway to the Science and Technology Journalism program and, as the title suggests, it's designed to give you a sense of the issues you will face as a professional in the science communication field. As we will see, "issues" is a broad term that will require the entire semester to unpack. Even then, we will necessarily leave a lot of ground uncovered. Nevertheless, you will learn about: current issues; fundamental concepts in science and technology journalism; elements of communication theory; components of science and journalism; and philosophy.

Course Prerequisites

None

Course Learning Outcomes

Students in the Science and Technology Journalism program move on to pursue many disparate careers. No single course could hope to cover all the issues relevant to each of those trajectories. However, there are foundational issues that are essential to an understanding of how all these different parts fit together within the larger landscape of communicating the developments in science and technology to the public whose lives may be impacted.

Through lectures, readings, discussions, and writing assignments, students will come to better understand:

- Constraints faced by science writers and editors
- The many roles of the journalist in the scientific enterprise
- Strategies for communicating science effectively
- The professional environment of science communicators
- How to juggle competing deadlines and other professional obligations

Textbook and/or Resource Materials

Readings for the course will be taken from a variety of sources. As much as possible, they will come from materials posted to Canvas as needed. That said, some books that I have regularly used in the past have suddenly become difficult to come by. Dr. Gastel and I have purchased copies of those books for you to borrow.

Finally, we will be reading from the latest edition of *The Best American Science and Nature Writing*. Traditionally, the new editions of this anthology come out in October. Things seem to be on track for the 2023 edition to come out on time, but we may have to use the 2022 edition. Either way, though, Dr. Gastel will be providing copies of this book for everyone.

Grading Policy

You are all graduate students with proven records of excellent academic achievement. You wouldn't be in this program if you weren't. I therefore expect "A" quality work from each of you, and I work from the assumption that you will perform to those expectations. I see no reason, then, to fret about numerical grades in graduate classes. Instead, each of your graded assignments will receive one of three marks:

- 0 Your work meets my expectations for excellent, graduate-level performance.
- +1 Your work exceeds my expectations in some way.
- 1 Your work doesn't meet my expectations.

Note that the most frequent reason students receive a minus is because they neglected to address some key element asked for in a writing prompt, so please read instructions carefully. Your final grade for each course component, then, will be determined by the sum of all assignments for that component. If that balance comes out as zero or better, you'll receive an A for the class.

Your grade in VIBS 657 will come from a combination of writing assignments, presentations, and class participation. Due dates for assignments will be announced in class. The contributions of the various components to your final grade will be as follows:

Midterm assignment:	25%
Final assignment:	25%
Miscellaneous assignments:	35%
Participation:	15%

Much of the substantive content in VIBS 657 comes about through in-class discussions, presentations, and activities. Therefore, it's important that you attend each class unless you have a university approved excuse or otherwise make arrangements with me in advance. It is also important that you arrive on time. Not only is this a professional courtesy, but also course activities are often planned with a specific number of students in mind. Showing up late or not at all can significantly affect the class dynamic. Arriving late or having an excessive number of unexcused absences will negatively impact your participation grade in VIBS 657.

Late Work Policy

Again, due dates for assignments will be announced in class. Professional life is filled with competing deadlines and conflicts with personal obligations, so you are expected to turn assignments in on time. That said, life happens. If something comes up that will prevent you from meeting an assignment deadline, please let me know in advance so alternative arrangements can be made.

University Policies

Attendance Policy

The university views class attendance and participation as an individual student responsibility. Students are expected to attend class and complete all assignments.

Please refer to [Student Rule 7](#) in its entirety for information about excused absences, including definitions, and related documentation and timelines.

Makeup Work Policy

Students will be excused from attending class on the day of a graded activity or when attendance contributes to a student's grade, for the reasons stated in Student Rule 7, or other reasons deemed appropriate by the instructor.

Please refer to [Student Rule 7](#) in its entirety for information about makeup work, including definitions, and related documentation and timelines.

Absences related to Title IX of the Education Amendments of 1972 may necessitate a period of more than 30 days for make-up work, and the timeframe for make-up work should be agreed upon by the student and instructor" ([Student Rule 7, Section 7.4.1](#)).

“The instructor is under no obligation to provide an opportunity for the student to make up work missed because of an unexcused absence” ([Student Rule 7, Section 7.4.2](#)).

Students who request an excused absence are expected to uphold the Aggie Honor Code and Student Conduct Code. (See [Student Rule 24](#).)

Academic Integrity Statement and Policy

“An Aggie does not lie, cheat or steal, or tolerate those who do.”

“Texas A&M University students are responsible for authenticating all work submitted to an instructor. If asked, students must be able to produce proof that the item submitted is indeed the work of that student. Students must keep appropriate records at all times. The inability to authenticate one’s work, should the instructor request it, may be sufficient grounds to initiate an academic misconduct case” ([Section 20.1.2.3, Student Rule 20](#)).

You can learn more about the Aggie Honor System Office Rules and Procedures, academic integrity, and your rights and responsibilities at aggiehonor.tamu.edu.

Americans with Disabilities Act (ADA) Policy

Texas A&M University is committed to providing equitable access to learning opportunities for all students. If you experience barriers to your education due to a disability or think you may have a disability, please contact Disability Resources in the Student Services Building or at (979) 845-1637 or visit disability.tamu.edu. Disabilities may include, but are not limited to attentional, learning, mental health, sensory, physical, or chronic health conditions. All students are encouraged to discuss their disability related needs with Disability Resources and their instructors as soon as possible.

Title IX and Statement on Limits to Confidentiality

Texas A&M University is committed to fostering a learning environment that is safe and productive for all. University policies and federal and state laws prohibit gender-based discrimination and sexual harassment, including sexual assault, sexual exploitation, domestic violence, dating violence, and stalking.

With the exception of some medical and mental health providers, all university employees (including full and part-time faculty, staff, paid graduate assistants, student workers, etc.) are Mandatory Reporters and must report to the Title IX Office if the employee experiences, observes, or becomes aware of an incident that meets the following conditions (see [University Rule 08.01.01.M1](#)):

- The incident is reasonably believed to be discrimination or harassment.
- The incident is alleged to have been committed by or against a person who, at the time of the incident, was (1) a student enrolled at the University or (2) an employee of the University.

Mandatory Reporters must file a report regardless of how the information comes to their attention – including but not limited to face-to-face conversations, a written class assignment or paper, class discussion, email, text, or social media post. Although Mandatory Reporters must file a report, in most

instances, you will be able to control how the report is handled, including whether or not to pursue a formal investigation. The University's goal is to make sure you are aware of the range of options available to you and to ensure access to the resources you need.

Students wishing to discuss concerns in a confidential setting are encouraged to make an appointment with [Counseling and Psychological Services](#) (CAPS).

Students can learn more about filing a report, accessing supportive resources, and navigating the Title IX investigation and resolution process on the University's [Title IX webpage](#).

Statement on Mental Health and Wellness

Texas A&M University recognizes that mental health and wellness are critical factors that influence a student's academic success and overall wellbeing. Students are encouraged to engage in proper self-care by utilizing the resources and services available from Counseling & Psychological Services (CAPS). Students who need someone to talk to can call the TAMU Helpline (979-845-2700) from 4:00 p.m. to 8:00 a.m. weekdays and 24 hours on weekends. 24-hour emergency help is also available through the National Suicide Prevention Hotline (800-273-8255) or at suicidepreventionlifeline.org.

Tentative Course Schedule

Below are the major topics we will be covering and the assigned readings for each week. Assignments will be announced in class at least one week before they are due. The mid-term and final assignments will be announced at least two weeks before they are due. All dates and assigned readings are subject to change depending on the what the rest of 2023 has in store for us.

Week 1 (8/23): Communication Theory

Science and technology journalism is a form of communication. That much seems obvious. However, what exactly is communication? What does it involve? What are its components? What are the implications for the role of science and technology communication in communicating scientific findings to the people whose lives will be affected? These are the questions we'll explore in our first lecture.

Week 2 (8/30): The World of the Scientist

Wherever your career takes you within science and technology journalism, chances are good that you will interact often with scientists. To communicate their findings to a wider public, it helps to know something of what the professional world of scientists is like. Knowing how scientists view the world and what motivates them professionally can help you navigate between their specialties and the public.

Readings

- Gregory J, Miller S. Chapter 2: Science in Public Culture. In: *Science in Public: Communication, Culture, and Credibility*. Cambridge, MA: Basic Books; 1998.
- *On Being a Scientist: A Guide to Responsible Conduct in Research*. Washington, DC: National Academy of Sciences, National Academy of Engineering, and Institute of Medicine; 2009.
- Nisbet MC, Scheufele DA. Scientists' Intuitive Failures: Much of what researchers believe about the public and effective communication is wrong. *The Scientist*. 2012. <http://www.the-scientist.com/?articles.view/articleNo/32384/title/Opinion--Scientists--Intuitive-Failures/>

Week 3 (9/6): When Scientists Communicate Directly to the Public

In principle, there's no absolute need for science and technology journalists. Scientists can, after all, communicate directly with the public. Indeed, some do and do so quite effectively. Others try and fail spectacularly. There is much you can learn about your own role in science communication from the most and least effective scientists who engage the public directly.

Readings

- Video by Tatiana Erukhimova: <https://youtu.be/bgP-ZD77TAk>
- Gregory J, Miller S. *Science in Public: Communication, Culture, and Credibility*. Cambridge, MA: Basic Books; 1998.
 - Chapter 1: The Recent "Public Understanding of Science Movement" (pp. 1-18)
 - Chapter 4: Popularization, Public Understanding, and the Public Sphere. (pp. 81-103)
 - Chapter 5: Media Issues in the Public Understanding of Science. (pp. 104-131)

Week 4 (9/13): Complications in the Science to Public Pipeline

Few things in this world are straightforward. It would be nice if scientific information flowed neatly from scientists to journalists to the public, but it doesn't. For much of the rest of the semester, we'll be exploring some of the problems with this idealized picture. This week, we'll begin with some of the complications that begin with the scientific enterprise itself.

Readings

- Jamieson KH, Kahan D, Scheufele DA, eds. *The Oxford Handbook of the Science of Science Communication*. Oxford, UK: Oxford University Press; 2017.
 - Kahan D. On the Sources of Ordinary Science Knowledge and Extraordinary Science Ignorance. (pp.35-49)
 - Hilgard J, Li N. A Recap: The Science of Communicating Science. (pp. 79-81)
 - Brown AW, Mehta TS, Allison DB. Publication Bias in Science: What Is It, Why Is It Problematic, and How Can It Be Addressed? (pp. 93-101)
 - Lohwater T, Storksdieck M. Science Communication at Scientific Institutions. (pp. 179-186)
 - Pope BK, Marincola E. The Role of Scholarly Presses and Journals. (pp. 187-196)
 - Morris J. The Role of Governmental Organization in Communicating About Regulating Science. (pp. 197-204)

Week 5 (9/20): Varieties of Science Journalism

At some point in your career, you will have to decide just what kind of science journalism to engage in. You might think I mean, by this, what kind of job you want. Yes, that's important, too, but what we'll mostly be exploring in this lecture is what position you want to take relative to science. Do you want to be a science booster? A science interpreter? A science critic? Ideally, that important decision will be entirely up to your own preferences. Life, though, will take you on a path with unexpected twists and turns so it's likely that you'll engage in many different types of journalism over the course of your career, not least because the professional landscape itself is constantly shifting.

Readings

- Perrault ST. *Communicating Popular Science: From Deficit to Democracy*. New York: Palgrave Macmillan; 2013.
 - Chapter 1: Popular Science Writing: Problems and Potential Social Contracts (pp. 3-17)
 - Chapter 2: Theoretical and Analytical Framework (pp. 18-36)
 - Chapter 3: A Brief History of Science Popularization (pp. 37-47)
 - Chapter 4: Practitioner Perspectives on their Craft (pp. 48-64)

Week 6 (9/27): Personal Knowledge Management

It is often said that we live in the information age. At no point in history has it been easier to find knowledge. Sometimes, in fact, it's almost too easy. With a few well-chosen keywords, hundreds, if not thousands, of relative sources can be instantly at your fingertip. This is remarkably powerful, but it has a dark side. Namely, what do you do with all of that information once you have it? How do you keep track of it all? How do you identify what's important? And, perhaps most importantly, how do you remember what you need when you need it? These questions are central to almost any career, but they're particularly salient to a career in which information is your primary commodity.

Readings

- TBD

Week 7 (10/4): Embargoes and How We Got Them

In this age of the 24-hour news cycle, reporters on most beats cover events as they're happening, writing stories without any idea of how things are going to end, and often submitting those stories before the events have had time to work themselves out. That's usually not the case, though, for

science reporting. Instead, science reporters often agree not to publish their stories until some pre-determined date. In exchange, they get advanced copies of scientific studies, which gives them more time to line up interviews and carefully check their work. This arrangement is known as an embargo, and it has important implications for how science journalists do their work.

Readings

- Kiernan V. *Embargoed Science*. Urbana, IL: University of Illinois Press; 2006.
 - Chapter 1: An Overview of News about Science and Medicine (pp. 1-43)
 - Chapter 2: A Brief History of Embargoes in Science Journalism (pp. 44-81)

Week 8 (10/11): Problems with Embargoes

There are strong arguments in favor of embargoes, and many reporters and editors appreciate them. However, they are not without their detractors, and some of the criticisms have profound implications for how the public comes to understand science.

Readings

- Kiernan V. *Embargoed Science*. Urbana, IL: University of Illinois Press; 2006.
 - Chapter 3: Accuracy in Science Journalism (pp. 82-102)
 - Chapter 4: Costs of the Embargo (pp. 103-122)
 - Chapter 5: The Embargo Should Go (pp. 123-140)

Week 9 (10/18): Sources of Bias

Humans come equipped with a full suite of biases. We usually think of bias in terms of the most egregious examples such as racism, sexism, homophobia, etc. Or perhaps we think of “liberal” and “conservative” slants to politically charged, controversial topics. However, some of our most pernicious biases are far more subtle, a topic we’ll explore in this lecture.

Readings

- Jamieson KH, Kahan D, Scheufele DA, eds. *The Oxford Handbook of the Science of Science Communication*. Oxford, UK: Oxford University Press; 2017.
 - Kenski K. Overcoming Confirmation and Blind Spot Biases When Communicating Science. (pp. 369-375)
 - Stroud NJ. Understanding and Overcoming Selective Exposure and Judgment When Communicating About Science. (pp. 377-387)
 - Hardy BW, Jamieson KH. Overcoming Biases in Processing of Time Series Data About Climate. (pp. 399-407)
- Christian SE. Cognitive biases and errors as cause—and journalistic best practices as effect. *Journal of Mass Media Ethics*. 2013;28(3):160-174.
- Janeira LF. The woman who needed to be upside down. In: Norman RA, ed. *Discover Magazine's Vital Signs: True tales of medical mysteries, obscure diseases, and lifesaving diagnoses*. New York: Skyhorse Publishing; 2013:142-148.
- Reisman A. Cruising into trouble. In: Norman RA, ed. *Discover Magazine's Vital Signs: True tales of medical mysteries, obscure diseases, and lifesaving diagnoses*. New York: Skyhorse Publishing; 2013:135-140.

Week 10 (10/25): Framing

For much of this semester, we've talked about science communication in terms of "objective" information being transmitted from the scientific community to the public. However, often how we present information is even more important than the information itself. Just as our perceptions of a scene can change radically depending on what the photographer includes or excludes from the frame of the picture, the same scientific study can inflect in very different ways depending on which specific points we emphasize and what other cultural information we choose to tie the study to.

Readings

- Jamieson KH, Kahan D, Scheufele DA, eds. *The Oxford Handbook of the Science of Science Communication*. Oxford, UK: Oxford University Press; 2017.
 - Druckman JN, Lupia A. Using Frames to Make Scientific Communication More Effective. (pp. 351-360)
 - Lull RB, Scheufele DA. Understanding and Overcoming Fear of the Unnatural in Discussion of GMOs. (pp. 409-420)
- Other readings to be announced

Week 11 (11/1): Communicating Science Through Museums

When thinking about a career in science communication, most people tend to think about jobs in journalism or public relations or editing. However, science gets communicated to the public in lots of different ways, so the variety of career opportunities is truly staggering. In this lecture, we're going to explore the world of science museums. Not only will this help you to think about your careers more broadly, considering how to communicate in a very different medium will help hone your communication instincts.

Readings

- Cain V, Rader KA. Science Communication and Museums' Changing Roles. In: Jamieson KH, Kahan D, Scheufele DA, eds. *The Oxford Handbook of The Science of Science Communication*. Oxford, UK: Oxford University Press; 2017:205-212.
- Priest SH, ed. *Encyclopedia of Science and Technology Communication*. Thousand Oaks, CA: SAGE Publications, Inc.; 2010.
 - Chittenden D. Science Centers and Science Museums. (pp. 691-694)
 - Powell M. Science Café. (pp. 689-690)
- Schiele B. Science museums and centres: Evolution and contemporary trends. In: Bucchi M, Trench B, eds. *Routledge Handbook of Public Communication of Science and Technology*. New York: Taylor and Francis; 2014:40-57.

Week 12 (11/8): Artificial Intelligence

Although artificial intelligence has been around since the mid-twentieth century, it wasn't on anyone's radar as potentially career changing for knowledge workers until late 2022 when ChatGPT made its dramatic debut. Now all of us are struggling to keep up with all of the ways AI is altering traditional knowledge work. Whatever your personal feelings are about AI, it is here to stay so all of us must adjust to this new reality.

Readings

- TBD

Week 13 (11/15): Covering Controversy

Scientific findings can often challenge people's foundational beliefs about themselves, others, and the world they live in. Moreover, as living through the COVID-19 pandemic has dramatically demonstrated, even the most seemingly innocuous information can spark national outrage and fierce public debate. In this lecture, we'll discuss challenges and strategies for covering controversy.

Readings

- Jamieson KH, Kahan D, Scheufele DA, eds. *The Oxford Handbook of the Science of Science Communication*. Oxford, UK: Oxford University Press; 2017.
 - Ferrari M. A Comparative Study of Communication About Food Safety Before, During, and After the "Mad Cow" Crisis. (pp.133-140)
 - Bonfadelli H. Communications About Biotechnologies and GMOs Across Europe. (pp. 157-164)
 - Kahan D, Landrum AR. A Tale of Two Vaccines--and Their Science Communication Environments. (pp. 165-172)
- Other readings to be announced

Week 14 (11/29): Solutions Journalism

The problems facing the world often seem insurmountable. It can be difficult to find hope, especially when many of the most important issues have been politicized to the point that people's stances become markers of personal identity. Solutions journalism offers a way to bypass much of the polarization that so often prevents us from solving critical problems facing society.

Readings

- Ripley A. Complicating the narratives—the whole story. <https://thewholestory.solutionsjournalism.org/complicating-the-narratives-b91ea06ddf63>
- Kristof N. They overcame mutual loathing, and saved a town. <https://www.nytimes.com/2021/04/10/opinion/sunday/loggers-environmentalists-oregon.html>
- Belmaker G. In syntropic agriculture, farmers stop fighting nature and learn to embrace it. <https://news.mongabay.com/2020/07/in-syntropic-agriculture-farmers-stop-fighting-nature-and-learn-to-embrace-it/>
- Bringing Midwifery Back to Black Mothers. <https://youtu.be/RtG24Vmwyzw>
- Other readings to be announced