

Communicating Research STS XXXX

Welcome! This course is designed to help engineering students learn to communicate their research to non-technical audiences such as the public, the media, scholars in other fields, and policymakers. Class topics will be a balance of teamwork to introduce concepts followed by individual assignments to apply the concepts to their own research. While the course is designed to optimize the practical experience of communicating research, theoretical principles and readings will be introduced as appropriate.

Course Objectives

By the end of the course, graduate students will:

- Be exposed to and practice three research messaging models
- Practice writing about their research in non-academic formats
- Present their research in front of their peers and guests at least three times in varying degrees of formality
- Analyze audiences such as scholars in other fields, the public, the media, and policymakers
- Offer critical feedback to their peers based on effective messaging principles
- Determine how to evaluate if their audience is “getting” their message
- Value the importance of communicating their research and how it matters to their career goals

Course date, time and location

TBD

All students should schedule a 15-minute meeting with the instructor or Lab Leader within the first three weeks of the course.

Office hours: By appointment.

Course Materials

All videos, readings and other materials will be available on Collab and/or provided in class.

A note on integrity

Allow your work to be your own. “Plagiarism is representing someone else’s ideas or work as your own original ideas or work.” Source: UVA Honor Committee. More available [here](#).

Grading

Course grade component	Total of 100 points	Source of grade
Class participation	15%	This score is given by the instructor.
Assignment #1 Executive Summary	10%	This score is a combination of the instructor and peer review (See Assignment #2).
Assignment #2 Executive Summary Critique Memo	5%	This score is given by the instructor.
Assignment #3 2 Min -1 Slide	20%	This score is a combination of the instructor and class peer review.
Assignment #4 Opinion Editorial	10%	This score is a combination of the instructor and peer review (See Assignment #5).
Assignment #5 Five Quick HWs	15%	This score is given by the instructor and is a computation of completion of each of these assignments.
Assignment #6 Final Project	25%	This score is a combination of the instructor and guest peer review.

Assignments: Unless otherwise noted, all assignments should be submitted to the instructor by email prior to the class period **and** as a hard copy in class. Late assignments will lose one point for each day they are late.

Executive Summary: Write an Executive Summary between 250-500 words about YOUR research.

Executive Summary Critique Memo: You will be provided a rubric to evaluate a classmate's Executive Summary. After you evaluate it, you should prepare a one-page memo explaining your feedback.

2 Minutes and 1 Slide: Prepare one-slide (no animation) explaining YOUR research. You will have two minutes to present it.

Opinion Editorial (Op-Ed): You will be given a choice of several news articles. Write an opinion editorial responding to the article. The length should be between 250 and 500 words.

Quick Homeworks: Estimated time out of class for each is 5-30 min. Two are required, and then **choose three others** for a total of five. Additional assignments may count as bonus points (3 points per assignment). Please note that Collab shows these assignments as "no grade". Because you will each have a different set of Quick HWs, I will compute the score outside of Collab and add it back in to your final grade.

1. Due **Jan 30/31**: Choose a TED talk from the Week 2 folder on the Collab site and prepare a half-page critique of the talk.
2. Due **Feb 6/7**: Use the Message Tool to analyze your research. REQUIRED.
3. Due **Feb 13/14**: Conduct an audience analysis. REQUIRED.
4. Due **Feb 20/21**: Choose five 3MT videos from the UVA website (available in Collab Week 6). Send me an email with your critique by 5:00PM Feb 26/27.
5. Due **Feb 27/28**: TWO CHOICES: Find a video example of science communication. OR Describe your research using an analogy of food, travel, or music.
6. Due **Mar 13/14**: TWO CHOICES: Find a science communication journal article. OR Find an example of in/effective science communication scene in a TV show or movie.
7. Due **Mar 20/21**: Find a video describing effective or ineffective presentation skills.
8. Due **Mar 27/28**: Find an example of an op-ed about a science topic.
9. Due **Apr 3/4**: Video yourself presenting your research for two minutes.
10. Due **Apr 10/11**: Choose one of the above you have not done.
11. Due **Apr 17/18**: Choose one of the above you have not done.

Final project: Estimated time: 1-2 hours for the message tool; 1-2 hours for the audience analysis; 8-12 hours for the presentation. 10 – 16 hours in total.

Your final presentation is a synthesis of all the concepts you have been exposed to in this course. Your presentation will be 5-7 minutes in length. You have a choice of one of the following:

- A) Your research area has just become a national policy debate. You have been invited to testify in front of the main Congressional committee studying the issue. Your task is to present your research to help inform the discussion. There are three elements to this presentation: 1) use of the message tool to formulate your story; 2) an audience analysis of the Congressional committee and 3) the presentation itself.
- B) You are being interviewed on CBS's *60 Minutes* about your research. There are three elements to this presentation: 1) use of the message tool to formulate your story; 2) an audience analysis of the program's main viewers 3) and the presentation itself.
- C) You are presenting to industry in one of two situations. One situation is you are applying for a job and you are presenting your research to persuade them you are a good addition to their team. The second situation is that you want the company to invest in your research. There are three elements to this presentation: 1) use of the message tool to formulate your story; 2) an audience analysis 3) and the presentation itself.
- D) Pitch another scenario to the instructor and the class. We will decide if it is acceptable. There are three elements to this presentation: 1) use of the message tool to formulate your story; 2) an audience analysis 3) and the presentation itself.

Course Schedule

Week	Date	Topic	Video Homework	Quick HW Due	Assignment Due
1	1/23 1/24	Course overview and expectations. What is research/science communication?	Watch "Communicating Science" (17 min) and "Science Communication, It's no joke" (5 min)	None	None
2	1/30 1/31	Message Tool		Critique of TED talk	None
3	2/6 2/7	Audience Analysis	Watch "Knowing Your Audience" (5 min) and "The importance of knowing your audience and speaking context" (9 min)	Use the Message Tool to analyze your research. (REQUIRED)	None
4	2/13 2/14	Writing for Non-Technical Audiences: How to write an Executive/Project Summary	"Technical Writing: How to Use Verbs" (3 min) and "Technical Writing: How to Simplify Sentences" (4 min)	Conduct audience analysis (REQUIRED)	None
5	2/20 2/21	The Value of Storytelling Effective and Ineffective Presentation Skills	Alan Alda: The Art of Communication (40 min)	Choose five 3MT videos from the UVA website (available in Collab Week 6)	Executive Summary
6	2/27 2/28	Three-Minute Thesis: Panel of Participants		TWO CHOICES: Find a video example of science communication. OR Describe your research using an analogy of food, travel, or music.	Executive Summary critique.
7	3/6 3/7	SPRING BREAK	None	None	None
8	3/13 3/14	2MT Presentations		Find a science communication journal article OR an example of in/effective a science communication scene in TV or movie.	Presentations
9	3/20 3/21	Effective Presentation Skills		Find a video describing effective or ineffective presentation skills.	None
10	3/27 3/28	Writing for Non-Technical Audiences: How to write an opinion editorial (Op-Ed)		Find an example of an op-ed about a science topic.	None
11	4/3 4/4	SUCCES model and using analogies to describe your research		Video yourself presenting your research for two minutes.	Op-ed on choice of articles
12	4/10 4/11	The Value of Storytelling	"Sharing science through story" (13 min); "How to tell a story" (18 min)	Choose one of the above you have not done.	None
13	4/17 4/18	Cushion/hold for topic of request		Choose one of the above you have not done.	None

14	4/24 4/25	Final presentation day with CoI guests		None	Final project
15	5/1 5/2	Final presentation day with CoI guests		None	Final project

Science/Research Communication Resources

Badgett, M.V.L., (2015) *The public professor: How to use your research to change the world*. New York, NY: New York University Press.

Baron, N. (2010). *Escape from the ivory tower: A guide to making your science matter*. Washington: Island Press.

Dean, C. (2009). *Am I making myself clear? A scientist's guide to talking to the public*. Cambridge, MA: Harvard University Press.

Heath, C., & Heath, D. (2007). *Made to stick: Why some ideas survive and others die*. New York: Random House.

Henderson, M. (2012). *The geek manifesto: Why science matters*. London: Bantam.

National Academies of Sciences, Engineering, and Medicine. (2016). *Communicating chemistry: A framework for sharing science: A practical evidence-based guide*. Washington, DC: The National Academies Press.

National Academies of Sciences, Engineering, and Medicine. (2016). *Communicating science effectively: A research agenda*. Washington, DC: The National Academies Press.

National Academies of Sciences, Engineering, and Medicine. (2016). *Effective chemistry communication in informal environments*. Washington, DC: The National Academies Press.

Olson, R., Barton, Dr., and Palermo, B., 2013. *Connection: Hollywood Storytelling Meets Critical Thinking*. Los Angeles, CA: Prairie Starfish Productions.

Olson, R. (2009). *Don't be such a scientist: Talking substance in an sge of style*. Washington D.C.: Island Press.

Paradis, J. G., & Zimmerman, M. L. (1997). *The MIT guide to science and engineering communication*. Cambridge, Mass: MIT Press.