

Prof. Paul Steinberg
Social Science 150
Harvey Mudd College
Office hours by appointment

M/W/F 9:00-9:50
Room: Shanahan 3461
Spring 2015

Public Speaking for Science and Citizenship

Effective public speaking is essential for both social engagement and scientific leadership. The goal of this course is to build student speaking skills in three areas: communicating advanced topics in science and technology to non-specialists; speaking out on questions of politics and values; and engaging the intersection of the two through presentations on technically intensive social controversies. This will be achieved through intensive practical training, peer feedback, observation of outside lectures and online speeches, and engagement with the literatures on technical communication and methods of social influence.

Required Texts

Edward R. Tufte, *The Visual Display of Quantitative Information*, 2nd ed., Graphics Press, 2001.

All other readings are available in a reader to be purchased using Paypal.

Course Requirements

Participation in discussions & practice sessions	10 %
Weekly reflection papers	10 %
Visual display assignments	10 %
Annotated bibliography	20 %
Oral presentations	50 %

Notes on Course Requirements

- Each student will give 17 presentations: nine in class, seven in practice sessions with peer groups, and one to an outside audience at the end of the semester. You will receive feedback and grades on each in-class presentation, the top seven of which will serve as the basis for your presentation grade.
- Each presentation is video recorded. You must view each of your recorded presentations and comment on lessons learned in your weekly reflection papers.
- Each student must attend six talks outside of the class: three scientific presentations (such as the Nelson Speaker series or departmental research colloquia) and three talks on social issues. For the latter, see the links on Sakai for the speakers coming to the Athenaeum and those announced on the Claremont Colleges calendar.
- 1-2 page reflection papers are due every Friday at 5pm beginning the second week, to be submitted in the drop box on Sakai. Reflection papers should include analysis and commentary on your recorded talk or on other lessons learned from talks viewed inside or outside of class.
- It is essential to arrive on time every time, as late arrivals disrupt student presentations. Persistent lateness or more than two unexcused absences will result in a significantly lowered grade. It is the responsibility of late or absent students to consult with classmates right away for announcements, handouts, and any relevant class notes. Attendance on the final day of class is a requirement for passing this course.
- Your independent research project, and an associated annotated bibliography, will serve as the basis of the final oral presentation. Your research can address any technically intensive, socially consequential topic.

Course Schedule

Note: Readings and video/audio clips are assigned throughout the week preceding the relevant section of the course to facilitate their timely completion in advance of group discussions. Letters in brackets {X} below indicate corresponding instructions posted on Sakai.

Wed Jan 21

Introduction and Course Overview

Going Public: Science Communication

Fri Jan 23

Guest lectures by HMC professors

Readings:

Katharine S. Miller, Wanted: “Civic Scientists” to Educate the Public, Press and Policy Makers, *Stanford Report*, February 20, 2001.

Note: Readings continue next page. Readings are available online before readers arrive.

Jan D'Arcy, *Technically Speaking: A Guide for Communicating Complex Information*, Batelle Press, 1998, pp. 13-20 only.

Stephen Jay Gould, *Ever Since Darwin: Reflections in Natural History*, W. W. Norton & Company, 1977. Chapters 23 and 14.

Mon Jan 26

{A} Come prepared to discuss readings from Friday and today.

Class discussion: Building a bridge between your message and your audience

Readings:

Carl Sagan (1993) Speaking Out, *Science* 260(5116):1861.

Susan Faludi, Speak for Yourself, *The New York Times Magazine*, January 26, 1992.

Susan Jacobson (2001) Promoting Conservation through Effective Public Speaking, *Conservation Biology in Practice* 2(2):2-3.

Jan D'Arcy, *Technically Speaking: A Guide for Communicating Complex Information*, Batelle Press, 1998, pp. 106-113 only.

Ronald Reagan, The Space Shuttle *Challenger* Tragedy Address. (Online video.)

Freeman Hrabowski, President, University of Maryland, Baltimore County. Commencement address at Harvey Mudd College, 2010. (Online video.)

Wed Jan 28

{B} Student presentations I: Present an advanced technical topic of your choice in a compelling and accessible manner to an audience of intelligent non-scientists. 7 minutes.

Sign up for next week's presentations using the "Articulating Values" google doc on sakai/resources.

Fri Jan 30

Student presentations I

Readings:

{C} Elie Wiesel (Online video.)

Mon Feb 2

Student presentations I



A one-paragraph description of your final presentation topic is due in the drop box on Sakai before class. This should be a concise description of what you plan to research, why, and how you will approach the topic. Carefully read the descriptions on Sakai of the annotated bibliography and of the final talk {I}.

Readings: James Baldwin (Online video.)

Optional: Martin Luther King, *Letter from Birmingham Jail*, April 16, 1963. (Widely available on the Internet.)

Wed Feb 4 Student presentations I

Readings: Vaclav Havel, "We Live in a Contaminated Moral Environment," Radio and TV Speech to the People of the Czech Republic, January 1, 1990. (Transcript.)

Articulating Values

Fri Feb 6 Individual meetings to discuss research topics. Parsons 1280

Mon Feb 9 {C}Student presentations II: Argue persuasively on behalf of a moral/ethical position drawing on chapters from *idebate* Top 100 debates (see Sakai for link). 7 minutes.

Hixon Courtyard

Wed Feb 11 Student presentations II

Hixon Courtyard

Readings: Malcolm X, "The Ballot or the Bullet" (Online audio.)

Fri Feb 13 Student presentations II

Hixon Courtyard

Readings: Richard Nixon, "The Checkers Speech" (Online audio.)

Mon Feb 16 Student presentations II

Hixon Courtyard

Readings: Robert Reich, "Reich: How Unequal Can America Get?," presentation at the Goldman School of Public Policy, UC Berkeley, 2005. (Online video.)

Political Engagement and Social Change

- Wed Feb 18** Discuss Malcolm X, Nixon and Reich. Lecture on social change.
- Readings: *Stephen's Guide to the Logical Fallacies*
- John Meany, *A Primer on Argumentation and Refutation*, CMC, 2004.
- Debate on Amnesty for Immigrants, University of Vermont, 2010 (online video). (Note: Unlike our in-class debates, the video shows "parliamentary-style" debate in which interruptions are allowed and speakers often speak very quickly.)
- Fri Feb 20** No class. View "research tips" video (Sakai) for guidance on conducting research for end-of-semester presentations.
- Mon Feb 23** {D} Student presentations III: Team Debates
- Wed Feb 25** Student presentations III: Team Debates
- Fri Feb 27** Student presentations III: Team Debates
- Readings: Edward R. Tufte, *The Visual Display of Quantitative Information*, 2nd ed., Graphics Press, 2001. (Pp. 13-16, 28-30, 40-43, 53, 60, 70-71, 74-75, 91-97, 107-109.)
- Scott L. Montgomery, Graphics and Their Place, in *The Chicago Guide to Communicating Science*, Chicago University Press, 2003.

Visual Display

- ⇒ Sunday evening: Turn in hardcopies of two graphics from the published literature in your field that are outstanding, especially in light of the principles discussed by Tufte. Due outside of Parsons 1280. (Please avoid items that will not reproduce well on B&W copies.)
- Mon March 2** Discussion of graphic displays of quantitative information. Come prepared to share your evaluation of your chosen graphics.
- Optional reading: J. Trumbo (2000) Seeing Science: Research Opportunities in Visual Communication of Science, *Science Communication* 21(4):379-391.

Wed March 4 Graphic Design Principles

⇒ **{E}** Using the Eurostat dataset for your analysis, work in pairs to create and turn in an original graphic representation fifteen minutes prior to class.

Continue discussion of graphics culled from literature

Discussion of tips for effective PowerPoint presentations.

Fri March 6 Is There Intelligent Life on PowerPoint?

⇒ By 8am today, email one original slide from one of your earlier talks, revised and improved in light of the principles discussed in class this week. We will discuss your slides as a group.

Readings: Edward Tufte, PowerPoint is Evil, *Wired Magazine*, September, 2003.

The Power of Narrative**Mon March 9** **{K}** Student Presentations IV: Relate a compelling 1-5 minute story

Platt Living Room

Readings: Henry N. Pollack, *Uncertain Science...Uncertain World*, Cambridge University Press, 2003. Chapters 2 (through mid-p.19) & 4.

Majora Carter, "Greening the Ghetto," search for video at www.ted.com

Wed March 11 Student Presentations IV

⇒ Draft bibliographies due on Sakai prior to class (the references without the summaries) **{L}**

Platt Living Room

{F} Sign up for presentations on uncertainty

Readings: Jane Gregory and Steve Miller, An ABC of Risk - Apples, Beef, and Comets, pp. 166-195 in *Science in Public: Communication, Culture, and Credibility*, Plenum Press, 1998.

Fri March 13 Student Presentations IV

Platt Living Room

Readings: G. Gigerenzer and A. Edwards (2003) Simple Tools for Understanding Risks: From Innumeracy to Insight, *British Medical Journal* 327:741-4.

March 14-22 *Spring Break*

{F} Communicating Risk and Uncertainty

Mon March 23

⇒ **Quiz** on Pollack, Gregory, Gigerenzer, Slovic. In-class discussion of same.

Readings: Paul Slovic, Beyond Numbers: A Broader Perspective on Risk Perception and Risk Communication, pp. 48-65 in Deborah G. Mayo and Rachele D. Hollander, *Acceptable Evidence: Science and Values in Risk Management*, Oxford University Press, 1991.

Wed March 25

{F} Student Presentations V: Student teams present summaries of readings on risk and uncertainty:

M. Granger Morgan and Max Henrion, The Nature and Sources of Uncertainty, pp. 47-72 in *Uncertainty: A Guide to Dealing with Uncertainty in Quantitative Risk and Policy Analysis*, Cambridge University Press, 1990.

A. Tversky and D. Kahneman (1981) The Framing of Decisions and the Psychology of Choice, *Science* 211: 453-458.

Harvey Brooks (1984) The Resolution of Technically Intensive Public Policy Disputes, *Science, Technology, & Human Values* 9 (1):39-50.

S. Holly Stocking, How Journalists Deal with Scientific Uncertainty (pp. 23-41), and Sharon Dunwoody, Scientists, Journalists, and the Meaning of Uncertainty (pp. 59-79), both in Friedman, Dunwoody and Rogers (eds.), *Communicating Uncertainty: Media Coverage of New and Controversial Science*, Lawrence Erlbaum Assoc. Publ., 1999.

Declan Fahy and Matthew C. Nisbet (2011) The Science Journalist Online: Shifting Roles and Emerging Practices, *Journalism* 12 (7):778-93.

Andy Stirling and David Gee (2002) Science, Precaution, and Practice, *Public Health Reports* 117:521-533.

Robert Costanza, Laura Cornwell, and Wendy Cleland-Hamnett, Are Worst-Case Estimates of Risk the Best Method for Making Environmental

Decisions?, pp. 18-35 in Thomas Easton (ed.), *Taking Sides: Clashing Views on Controversial Issues in Science, Technology, and Society*, Dushkin Publ., 1995.

Scott T. McCreary, John K. Gamman, and Bennett Brooks (2001) Refining and Testing Joint Fact-Finding for Environmental Dispute Resolution: Ten Years of Success, *Mediation Quarterly*, Volume 18(4).

Mastrandrea et al., *Guidance Note for Lead Authors of the IPCC Fifth Assessment Report on Consistent Treatment of Uncertainties*. Geneva, Switzerland: Intergovernmental Panel on Climate Change (IPCC), Geneva, 2010. [Pick and choose insights.]

Fri March 27 *Cesar Chavez day – no class*

Mon March 30 Student Presentations V

Wed April 1 Student Presentations V

⇒ Annotated bibliographies due in Sakai before class. **{L}**

Readings: **{G}** Al Gore, *An Inconvenient Truth*. Video screening in evenings.

Communicating Complexity

Fri April 3

{G} Come prepared to discuss techniques used in *An Inconvenient Truth*.

Mon April 6 No class. Work on research for final talk. Optional individual meetings by appointment

Wed April 8 Student presentations VI: Provide a 5-minute summary of a highly complex topic assigned in class.

Fri April 10 Student presentations VI

Extemporaneous Speaking

Mon April 13 Student presentations VII: Extemporaneous responses to televised policy debates

Wed April 15 No class (advising). Work on research for final talk

Fri April 17 No class (advising). Work on research for final talk

{H} Concise Persuasion (“The Elevator Speech”)

Mon April 20 Student presentations VIII: Prepare both a one-sentence and one-minute summary of your final presentation.

Parsons 1280

Wed April 22 Student presentations VIII

⇒ **{I}** Presentation strategy notes for final presentation due on Sakai prior to class

Parsons 1280

Integrating Science, Technology, and Social Analysis

Fri April 24 Individual meetings to discuss final research presentations

Readings: Roland Schenkel (2010) The Challenge of Feeding Scientific Advice into Policy-making, *Science* 330: 1749–51.

Optional: Henry Kelly et al., *Flying Blind: The Rise, Fall, and Possible Resurrection of Science Policy Advice in the United States*, Federation of American Scientists, Washington DC, 2004. Report is available at www.fas.org

Mon April 27 Student presentations IX: Final presentations (3 minutes + Q&A)

Wed April 29 Student presentations IX: Final presentations

⇒ **Fri May 1** **{J}** Wrap-up and evaluation

Submit accounting sheets for outside talks, videos viewed, & practice talks.

May 4-6 HMC Presentation Days. Our class presents to a group of staff over lunch. Day to be announced.