



Comm 4660/STS 4661: Public Communication of Science & Technology Spring 2013

This syllabus (including any updates) appears at <http://blackboard.cornell.edu>

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Professor

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Office hours

Tues., 12:30 – 2:30 in Kennedy 321
and happily by appointment

Time and location

MW 2:55-4:10

Kennedy 211

Course description

This course is about ways to think about "public communication of science and technology" (PCST). We will do so primarily by reading about current research in the field, rather than experiencing it ourselves. We will begin by looking at several models of PCST. Then we'll work through a series of topics (GMOs, nanotechnology, climate change, etc.) to explore different approaches to studying these topics. Essentially, we'll be looking to see if the models help explain the research results – or, put another way, whether the models match up with what happens in the real world. More formally, the course objectives are:

- To learn to read, analyze, and critique scholarly literature (about PCST)
- To understand approaches to thinking (about PCST)
- To learn to apply scholarly analyses (of PCST) to real-world examples

This will be a seminar course. That means that everyone does the reading and everyone comes to class prepared to explore the readings. To "explore the readings" means you've read the texts, you've thought about them, and you're ready to see where the arguments lead. It also means you've identified inconsistencies or problems with the logic and are ready to tear the text apart. You will usually find material that is intellectually challenging: it may require multiple readings to make sense, or it may challenge beliefs you already have (even though you may not have known that you have them). You will be expected to justify your reactions to the texts with specific references to the texts or, when relevant, to other texts.

For most class sessions, one of you will lead the discussion. The leader will come to class with a specific set of questions raised by the readings. Those questions may emerge from the content of the reading, or they may question the logic or approach taken by the author(s). Discussion leaders will have to circulate the questions a couple of days before class, via Blackboard.

Readings

The readings will all be posted online (with direct links to publications, links through the Cornell library system, and occasionally to scanned copies of material not available online).

You should also consider browsing some of the key journals in the field, looking for relevant articles. The *most* relevant journals are *Public Understanding of Science* and *Science Communication*. If your interests tend more towards communication issues, look at *Journalism and Mass Communication Quarterly*, *Journal of Communication*, *Health Communication*, and *Critical Studies in Mass Communication*. If your interests run more towards science studies or science policy issues, consider *Social Studies of Science* and *Science, Technology & Human Values*.

You should also be exploring some blogs focused on PCST:

- <http://alicerosebell.wordpress.com/> (An academic sort of like me)
 - See especially her list of recommended readings:
 - <http://alicerosebell.wordpress.com/2011/03/08/science-communication-101-bibliography/>
- <http://nanopublic.blogspot.com/> (Another academic sort of like me)
- <http://blogs.nottingham.ac.uk/makingsciencepublic/> (A whole project of academics sort of like me, in the UK)
- <http://diffusion.weblogs.anu.edu.au/> (Another whole project of academics sort of like me, but in Australia)
- <http://caise.insci.org/> (A set of practitioners who I talk with a lot, mostly from the museum world)
- <http://ksj.mit.edu/tracker> (commentary on science journalism)
- http://www.cjr.org/the_observatory/ (more commentary on science journalism)
- A mailing list, PCST-L – see instructions for subscribing at <http://mailmanlist.net/cgi-bin/mailman/listinfo/pcst>.
- And a brand new one, just showed up two days before class began: <http://figureoneblog.wordpress.com/>.

Grades

About 50% of your grade will depend on class participation, electronic bulletin board participation, your activity as a discussion leader, and small assignments during the semester; the remaining 50% will depend on a final project or paper (exact format to be determined).

Academic integrity

As you know, you are responsible for following Cornell's Code of Academic Integrity. You should review the Code at <http://cuinfo.cornell.edu/Academic/AIC.html>. In particular, any work that you hand in should be your own. If you have any questions about how to interpret the Code in the context of assignments or activities in this class (especially any that involve collaboration with your colleagues), please feel free to contact me or the University Ombudsman.

Course plan, as of 18 January 2013

Week 1: 21, 23 January: How to approach public communication of science and technology

- Alice Bell on public engagement:
<http://www3.imperial.ac.uk/graduateschool/currentstudents/publicengagement>
- A debate on approaches to PCST:
 - Greenfield, Susan. (2003, 9 April). A new kind of literacy, *The Guardian*,
<http://www.guardian.co.uk/education/2003/apr/10/science.highereducation1>.
 - Turney, Jon. (2003, 16 April). How Susan Greenfield got it wrong, *The Guardian*,
<http://www.guardian.co.uk/education/2003/apr/17/research.highereducation1>.
 - Greenfield, Susan. (2003, 25 April). Why working together is the only way forward, *The Guardian*,
<http://www.guardian.co.uk/life/opinion/story/0,12981,943779,943700.html>.

Week 2: 28, 30 January: Deficits and engagement

- Bauer, Martin W., Allum, Nick, & Miller, Steve. (2007). What can we learn from 25 years of PUS survey research? Liberating and expanding the agenda. *Public Understanding of Science*, 16(1), 79-95. [[link](#)]
- McCallie, Ellen, Bell, Larry, Lohwater, Tiffany, Falk, John, Lehr, Jane H., Lewenstein, Bruce V. Needham, Cynthia, Wiehe, Ben. (2009). *Many Experts, Many Audiences: Public Engagement with Science and Informal Science Education. A CAISE Inquiry Group Report* (pp. 83). Washington, DC: Center for Advancement of Informal Science Education. [[link](#)]
- http://iseevidencewiki.org/index.php/Public_Engagement

Supplementary readings

- A recent online discussion about the links between research and practice in the area of informal science education. [on Blackboard]

Recent detailed research

- Barnett, Julie, Burningham, Kate, Walker, Gordon, & Cass, Noel. (2012). Imagined publics and engagement around renewable energy technologies in the UK. *Public Understanding of Science*, 21(1), 36-50. [[link](#)]
- Jensen, Eric, & Buckley, Nicola. (2012). Why people attend science festivals: Interests, motivations and self-reported benefits of public engagement with research. *Public Understanding of Science*. [[link](#)]
- Mohr, Alison, & Raman, Sujatha. (2012). Representing the Public in Public Engagement: The Case of the 2008 UK Stem Cell Dialogue. *PLoS Biol*, 10(11), e1001418. [[link](#)]
- Navid, Erin L., & Einsiedel, Edna F. (2012). Synthetic biology in the Science Café: what have we learned about public engagement? *JCOM: Journal of Science Communication*, 11(4). [[link](#)]
- Veen, Mario, te Molder, Hedwig, Gremmen, Bart, & van Woerkum, Cees. (2011). Competing Agendas in Upstream Engagement Meetings Between Celiac Disease Experts and Patients. *Science Communication*. [[link](#)]

Week 3: 4, 6 February: Learning science in informal environments

- Bell, Philip, Lewenstein, Bruce V., Shouse, Andrew, & Feder, Michael (Eds.). (2009). *Learning Science in Informal Environments: People, Places, and Pursuits*. Washington, DC: National Academies Press. Full report can be downloaded from http://www.nap.edu/catalog.php?record_id=12190. Read chapters 1, 2, 9 and skim the rest.
- See the critiques of the report in *Curator: The Museum Journal*, vol. 53, no. 2, April 2010, accessible through the Cornell Library [[link](#)].

Week 4: 11, 13 February: The science of science communication

- [The Micro View: Individual Responses in Science Communication](#), Baruch Fischhoff, Carnegie Mellon University (18 mins)
- [The Macro View: Social Dynamics in Science Communication](#), Dietram Scheufele, University of Wisconsin, Madison (21 mins)
- [Effects of Mass Media on the Political Process: How Do Mass Media Shape the Nature of Public Debates About Science?](#), Matthew C. Nisbet, American University (24 mins)
- [New Media Landscapes: Where Do People Go for Information About Science and How Do They Evaluate What They Find?](#), Dominique Brossard, University of Wisconsin, Madison (24 mins)

Week 5: 18, 20 February: Topic: GMOs (genetically modified organisms) and food labeling

- Nucci, Mary L., & Kubey, Robert. (2007). "We Begin Tonight With Fruits and Vegetables": Genetically Modified Food on the Evening News 1980-2003. *Science Communication*, 29(2), 147-176. [[link](#)]
- Torgersen, Helge, & Hampel, Jürgen. (2012). Calling controversy: assessing synthetic biology's conflict potential. *Public Understanding of Science*, 21(2), 134-148. [[link](#)]
- Wolfe, Amy K., & Bjornstad, David J. (2008). "It's like déjà vu, all over again": Anticipating Societal Responses to Nanotechnology. In Kenneth H. David & Paul B. Thompson (Eds.), *What can nanotechnology learn from biotechnology? : social and ethical lessons for nanoscience from the debate over agrifood biotechnology and GMOs* (pp. 157-172). Amsterdam; Boston: Elsevier : Academic. [[link](#)]
- Schuldt, Jonathon P., & Hannahan, Mary. (2013). When good deeds leave a bad taste: Negative inferences from ethical food claims. *Appetite*, 62(0), 76-83. [[link](#)]
- Schuldt, Jonathon P., Muller, D., & Schwarz, Norbert. (2012). The "fair trade" effect: Health halos from social ethics claims. *Social Psychological and Personality Science*, 3, 581-589. [on Blackboard]

Week 6: 25, 27 February: Topic: Nanotechnology

- Jasanoff, Sheila. (2011). Constitutional Moments in Governing Science and Technology. *Science & Engineering Ethics*, 17(4), 621-638. [[link](#)]
 - van Est, Rinie. (2011). The Broad Challenge of Public Engagement in Science. *Science & Engineering Ethics*, 17(4), 639-648. [commentary] [[link](#)]
- van Oudheusden, Michiel. (2011). Questioning 'Participation': A Critical Appraisal of its Conceptualization in a Flemish Participatory Technology Assessment. *Science & Engineering Ethics*, 17(4), 673-690. [[link](#)]
 - Guston, David H. (2011). Participating Despite Questions: Toward a More Confident Participatory Technology Assessment. *Science & Engineering Ethics*, 17(4), 691-697. [commentary] [[link](#)]

- Siegrist, Michael, & Keller, Carmen. (2011). Labeling of Nanotechnology Consumer Products Can Influence Risk and Benefit Perceptions. *Risk Analysis*, 31(11), 1762-1769. [[link](#)]
- Pidgeon, Nick, & Rogers-Hayden, Tee. (2007). Opening up nanotechnology dialogue with the publics: Risk communication or "upstream engagement"? *Health, Risk & Society*, 9, 191-210. [[link](#)]
- <http://www.nisenet.org/>

Supplementary readings:

- For much more on nanotechnology and public engagement, see the full special issue from which the Jasanoff, van Est, van Oudheusden, and Guston readings come: *Science & Engineering Ethics*, 17(4), November 2011. [[link](#)]

Week 7: 4, 6 March: Topic: Climate change

- Schuldt, Jonathon P., Konrath, Sara H., & Schwarz, Norbert. (2011). "Global warming" or "climate change"? *Public Opinion Quarterly*, 75(1), 115-124. [[link](#)]
- Hart, P. Solomon, & Nisbet, Erik C. (2011). Boomerang effects in science communication: Political partisanship, social identity and public support for climate mitigation. *Communication Research*, published online ahead of print [[link](#)]
- Pidgeon, Nick, & Fischhoff, Baruch. (2011). The role of social and decision sciences in communicating uncertain climate risks. *Nature Clim. Change*, 1(1), 35-41. [[link](#)]
- <http://www.climatechangecommunication.org/> [look for most recent reports]
- [*Trust in Scientists, Controversy Among Scientists, and American Public Opinion on Climate Change: How Attitude Formation and Change Unfolds*](#), Jon Krosnick, Stanford University (26 mins)
- [*Building Organizational Infrastructures for Effective Communication: What Have We Learned from Experiences in the Corporate, Governmental, and Academic Worlds?*](#), Ed Maibach, George Mason University (22 mins)
- [*The National Partnership for Climate Communication*](#), Anthony Leiserowitz, Yale University (15 mins)

Week 8: 11, 13 March: Topic: Evolution

- Jones, John E., III. (2005). Memorandum Opinion: *Kitzmiller et al. v. Dover Area School District et al.* (400 F. Supp 2d 707, Docket no. 4cv2688). [[link](#)]
- Mooney, Chris, & Nisbet, Matthew C. (2005, September/October). Undoing Darwin. *Columbia Journalism Review*. [[link](#)]
- Bhattacharjee, Yudhijit. (2010). NSF Board Draws Flak for Dropping Evolution From Indicators. *Science*, 328(5975), 150-151. [[link](#)]
- Nisbet, M. C., & Nisbet, E. C. (2005). Evolution and intelligent design - Understanding public opinion. [Article]. *Geotimes*, 50(9), 28-33. [[link](#)]
- National Center for Science Education: <http://ncse.com/>.

SPRING BREAK

Week 9: 25, 27 March: Topic: Fracking

This is an ongoing controversy – we'll look for whatever is current.

Week 10: 1, 3 April – Topic: Citizen science

- Bonney, Rick, Ballard, Heidi, Jordan, Rebecca, McCallie, Ellen, Phillips, Tina, Shirk, Jennifer, & Wilderman, Candie C. (2009). *Participation in Scientific Research: Defining the Field and Assessing Its Potential for Informal Science Education CAISE Inquiry Group Reports* (pp. 58). Washington, DC: Center for Advancement of Informal Science Education. [[link](#)]
- Shirk, Jennifer L., Ballard, Heidi L., Wilderman, Candie C., Phillips, Tina, Wiggins, Andrea, Jordan, Rebecca, McCallie, Ellen, Minarchek, Matthew, Lewenstein, Bruce V., Krasny, Marianne E., Bonney, Rick. (2012). Public Participation in Scientific Research: A Framework for Intentional Design. *Ecology and Society*, 17(2), 29-48. [[link](#)]

Supplementary readings:

- Dickinson, Janis L., & Bonney, Rick. (2012). *Citizen science : public participation in environmental research*. Ithaca: Comstock Pub. Associates. [on reserve at Mann Library]
- Some relevant blogs:
 - <http://blogs.plos.org/citizensci/>
 - <http://scistarter.com/blog/>

Week 11: 8, 10 April – Topic: Broadcasting

Selections from the following:

- LaFollette, Marcel C. (2002). A Survey of Science Content in U.S. Radio Broadcasting, 1920s through 1940s. *Science Communication*, 24(1), 4-33. [[link](#)]
- LaFollette, Marcel C. (2002). A Survey of Science Content in U.S. Television Broadcasting, 1940s through 1950s. *Science Communication*, 24(1), 34-71. [[link](#)]
- LaFollette, Marcel C. (2006). Taking Science to the Marketplace: Examples of Science Service's Presentation of Chemistry during the 1930s. *Hyle: International Journal for the Philosophy of Chemistry*, 12(1), 67-97. [[link](#)]
- LaFollette, Marcel C. (2008). *Reframing Scopes : journalists, scientists, and lost photographs from the trial of the century*. Lawrence, Kan.: University Press of Kansas. [on reserve]
- LaFollette, Marcel C. (2008). *Science on the air : popularizers and personalities on radio and early television*. Chicago: University of Chicago Press. [on reserve]
- LaFollette, Marcel Chotkowski. (2012). *Science on American Television: A History*. Chicago: University of Chicago Press. [on reserve]

Week 12: 15, 17 April – Class presentationsWeek 13: 22, 24 April – Class presentationsWeek 14: 29 April, 1 May – Studying PCST**Final paper/project due:**

Tuesday, 14 May, 11:30 am