



Cornell University

## **Comm 4660/STS 4661: Public Communication of Science & Technology Spring 2021**

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This syllabus (including any updates) is also available through Cornell's Canvas site  
This version updated: 4 Feb 2021

### **Professor**

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### **Office hours**

Tuesday, 1:00-3:00 via Zoom.  
Make appointments via:  
<https://bruce-lewenstein.youcanbook.me/>

### **Class time and location**

Tues & Thurs, 8:05-9:20 am  
Via Canvas/Zoom

### **Course description**

Our broad topic is "public communication of science and technology" (PCST); this semester, our specific topic will be science and culture – how can we understand science as a part of the public culture around it? What do popular science toys tell us about childhood? Where do science museums fit in family culture? What kinds of images appear on television or in movies or in cartoons? What do celebrity scientists tell us about celebrity in the modern world? We'll be exploring the meaning of science in today's culture – or do I mean the meaning of today's culture when viewed through science?

The course objectives are:

- To learn about various points of intersection of science and public culture in the last 100 years or so (mostly in the United States, but some excursions further afield)
- To learn to read, analyze, and critique scholarly literature (about science and culture)
- To learn to write scholarly analyses of science and culture

This will be a seminar course. That means that everyone does the reading and everyone comes to (virtual) 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 or two of you will lead the discussion. The leader(s) will come to the Zoom room 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 circulate the questions the day before class, via Canvas.

### **Readings**

All readings should be done before the week begins (that is, before Tuesday's class – actually, by Sunday would be good, so you can make better contributions to class discussion board – see below). Most readings will be posted online (with direct links to publications, links through the Cornell library system, and occasionally to scanned copies of material not available online). Some readings will involve you exploring a set of links online.

### **Grades**

About 30% of your grade will depend on class participation, Canvas discussion board/reading response participation, and your activity as a discussion leader; 40% on short during-the-semester papers (you can drop the lowest score); and the remaining 30% will depend on your final paper.

### **Assignments**

1. Each week, post a short (less than one page) response to the readings on the Canvas discussion site. I also encourage you to respond to the postings of other students, so that we have discussion going on throughout the week – more online engagement counts towards "class participation." You may skip up to 3 weeks and still receive full credit.
2. Short papers
  - a. 12 February: What do you think science communication is? (1-2 paragraphs)
  - b. 2 March: Science museum visit reflection (1 page)
  - c. 23 March: Science in culture analysis (1-2 pages)
  - d. 8 April: Movie review (1-2 pages)
  - e. 29 April: Book review (1-2 pages)
3. Final paper
  - a. ~20 April: Paper proposal (1 page)
  - b. 4 May: Draft paper (10-15 pages)
  - c. Finals week (19-25 May – exact date TBD): Final paper (revised 10-15 pages)

**Note: The next few sections of this syllabus look like boilerplate. But they're not. Reading and understanding them is critical to success in this course and in your overall education. Please let me know if you have any questions.**

### **Academic integrity**

Academic integrity is crucial to your personal scholarly identity. Your rights and responsibilities in this area are outlined in the Cornell University Code of Academic Integrity:

<https://theuniversityfaculty.cornell.edu/academic-integrity/>.

Violations of the code of conduct include but are not limited to:

- Submitting work in this class that has also been submitted for a grade in another course without prior permission of both instructors.
- Using, obtaining, or providing unauthorized assistance on examinations, papers, or any other academic work.
- Misrepresenting another person's work as your own (including but not limited to purchased term papers and plagiarism).

You are responsible for obeying the Code of Academic Integrity. Ignorance of the code is not an excuse.

The most common problem for many students is plagiarism, which will not be tolerated and will be sanctioned, up to and including failure of the course. Students from cultures outside the United States should be especially aware that American standards of acknowledgement and use of material prepared by others (including one's professors) can be much different than those in other cultures. More information about plagiarism is available at <http://plagiarism.arts.cornell.edu/tutorial/index.cfm>.

To address issues of academic integrity, we will use the Turnitin system for most formal assignments. Students agree that by taking this course all required papers may be subject to submission for textual similarity review to Turnitin.com for the detection of plagiarism. All submitted papers will be included as source documents in the Turnitin.com reference database solely for the purpose of detecting plagiarism of such papers. Use of Turnitin.com service is subject to the Usage Policy posted on the Turnitin.com site.

If you have any questions about how to interpret Cornell's Code of Academic Integrity in the context of assignments or activities in this class (especially any that involve collaboration with your colleagues), please feel free to contact the instructor or the University Ombudsman.

### **Students with special circumstances**

Cornell University (as an institution) and I (as a human being and instructor of this course) are committed to full inclusion in education for all persons. Services and reasonable accommodations are available to students with temporary and permanent disabilities, to students with DACA or undocumented status, to students facing mental health issues, to students with other personal situations (such as family emergencies or religious observances), and to students with other kinds of learning needs. Please feel free to let me know if there are circumstances affecting your ability to participate in class. Some resources that might be of use include:

- Office of Student Disability Services, <https://sds.cornell.edu/>
- Cornell Health (Mental Health Care), [https://health.cornell.edu/services/counseling-  
psychiatry](https://health.cornell.edu/services/counseling-psychiatry)
- Undocumented/DACA Student Support, [https://scl.cornell.edu/identity-  
resources/undocumented-daca-support](https://scl.cornell.edu/identity-resources/undocumented-daca-support)
- Learning Strategies Center, <http://lsc.cornell.edu/>
- Office of Spirituality and Meaning Making/Cornell United Religious Work, <https://scl.cornell.edu/identity-resources/office-spirituality-and-meaning-making>

I would be glad to help you identify other resources if needed.

### **Equity and Justice**

Students enrolled in this course represent a rich variety of backgrounds and perspectives that are unique and valuable. I am committed to providing an atmosphere for learning that is inclusive, respects diversity, and promotes equity and justice. We will treat students of all backgrounds including race, ethnicity, gender, sexual orientation, nationality, immigration status, religion, and political ideology fairly and with honesty, integrity, and respect. While working together to build a supportive and inclusive learning environment in this course, I ask everyone to:

- Share their unique experiences, values and beliefs.
- Be open to the views of others.
- Honor the uniqueness of their colleagues.
- Appreciate the opportunity that we have to learn from each other in this community.
- Value each other's opinions and communicate in a respectful manner.

**Again: Let me know if you have any questions, if you'd like to discuss any of these issues, or if you're curious why I emphasize them so much.**

**Now, on to the details of our daily work!**

## Course plan

Note: Many of the links to readings require access to the Cornell University library. If you are not on the campus network, use one of the world's great Cornell library inventions: Passkey.

<https://www.library.cornell.edu/services/apps/passkey>.

Week #	Date	Content
1	9 Feb 11 Feb	<p><b>Intro: Science and Culture</b></p> <ul style="list-style-type: none"> <li>Durant, J., Buckley, N., Comerford, D., Fogg-Rogers, L., Fooshee, J., Lewenstein, B., &amp; Wiehe, B. (2016). <i>Science Live: Surveying the landscape of live public science events</i>. Cambridge, MA: MIT Museum. [on Canvas]</li> </ul> <p>DUE, <i>Friday</i>, 12 February, 5:00 pm: Brief reflection on science and public culture</p>
2	16 Feb 18 Feb	<p><b>Science and culture</b></p> <ul style="list-style-type: none"> <li>Farmelo, G. (2004). Only Connect: Linking the Public With Current Scientific Research. In D. Chittenden, G. Farmelo, &amp; B. V. Lewenstein (Eds.), <i>Creating Connections: Museums and the Public Understanding of Current Research</i> (pp. 1-26). Walnut Creek, CA: Altamira Press. [on Canvas]</li> <li>Kirby, David A. (2019). Knowledge Production Between Popular Culture and Scientific Culture. In A. Görgen, G. A. Nunez, &amp; H. Fangerau (Eds.), <i>Handbook of Popular Culture and Biomedicine: Knowledge in the Life Sciences as Cultural Artefact</i> (pp. 15-23). Cham: Springer International Publishing. <a href="https://doi.org/10.1007/978-3-319-90677-5_2">https://doi.org/10.1007/978-3-319-90677-5_2</a> [<a href="#">Cornell library access</a>]</li> </ul>
3	23 Feb 25 Feb	<p><b>How to analyze science and culture</b></p> <ul style="list-style-type: none"> <li>Davies, S. R., &amp; Horst, M. (2016). <i>Science Communication: Culture, Identity, and Citizenship</i>. London: Palgrave. (Read chs. 1 (Introduction) &amp; 2 (Histories) [<a href="#">Cornell library access</a>])</li> <li>Dawson, E. (2017). Social justice and out-of-school science learning: Exploring equity in science television, science clubs and maker spaces. <i>Science Education</i>, 101(4), 539-547. [<a href="#">Cornell library access</a>] [Then, compare with <a href="#">the 'zine version</a>.]</li> </ul>

4	2 Mar 4 Mar	<p><b>Science, culture, and communication</b></p> <ul style="list-style-type: none"> <li>• Pandora, K. (2009). The Children's Republic of Science in the Antebellum Literature of Samuel Griswold Goodrich and Jacob Abbott. <i>Osiris</i> (2<sup>nd</sup> ser.), 24, 75-98. [<a href="#">Cornell library access</a>]</li> <li>• Allgaier, Joachim. (2014, 29 September). Bluegrass, beards, tattoos, and stem cells: <i>The Broken Circle Breakdown</i> and the human view on science and technology. <i>Science and Entertainment Laboratory</i>. <a href="http://thescienceandentertainmentlab.com/bluegrass-beards-tattoos-and-stem-cells/">http://thescienceandentertainmentlab.com/bluegrass-beards-tattoos-and-stem-cells/</a> [Optional: If you're interested in watching the movie, I found it on the Roku Channel and possibly Amazon Prime]</li> </ul> <p>DUE, Tuesday, 2 March, 5:00 pm: Science museum (virtual) visit reflection</p>
5	9 Mar 11 Mar	<p><b>Science in culture: Museums and literature</b></p> <p><b>NOTE: No class on Tuesday, 9 March: Wellness day</b> (as is 10 Mar)</p> <ul style="list-style-type: none"> <li>• Rader, K. A., &amp; Cain, V. (2008). From natural history to science: display and the transformation of American museums of science and nature. <i>Museum and Society</i>, 6(2), 152-171. [<a href="#">link</a>]</li> <li>• Onion, R.S. (2011). Picturing Nature and Childhood at the American Museum of Natural History and the Brooklyn Children's Museum, 1899-1930. <i>Journal of the History of Childhood and Youth</i>, 4(3), 434-469. [<a href="#">Cornell library access</a>]</li> </ul>
6	16 Mar 18 Mar	<p><b>Science in culture: Amateurs</b></p> <ul style="list-style-type: none"> <li>• McCray, W. P. (2006). Amateur Scientists, the International Geophysical Year, and the Ambitions of Fred Whipple. <i>Isis</i>, 97(4), 634-658. [<a href="#">Cornell library access</a>]</li> <li>• Lewenstein, B. V. (2013). Recreation in the public communication of science and technology. In E. Reynoso Haynes, B. M. Sandoval, M. Garcia Guerrero, &amp; C. de la Luz Ramírez (Eds.), <i>Memorias de la XIII Reunión de la Red de Popularización de la Ciencia y la Técnica en América Latina y el Caribe - XIX Congreso Nacional de Divulgación de la Ciencia y la Técnica</i> (pp. 89-101). Mexico: SOMEDCyT. [on Canvas]</li> </ul>

7	23 Mar 25 Mar	<p><b>Science in Culture: Movies</b></p> <ul style="list-style-type: none"> <li>● Kirby, D. A. (2000). The New Eugenics in Cinema: Genetic Determinism and Gene Therapy in GATTACA. <i>Science Fiction Studies</i>, 27(2), 193-215. [<a href="#">Cornell library access</a>]</li> <li>● Nisbet, M. C., &amp; Dudo, A. (2013). Entertainment Media Portrayals and Their Effects on the Public Understanding of Science. In D. J. Nelson, K. R. Grazier, J. Paglia, &amp; S. Perkowitz (Eds.), <i>Hollywood Chemistry</i> (pp. 241-249). Washington: American Chemical Society. [<a href="#">link</a>]</li> <li>● Schmidt, M., Meyer, A., &amp; Cserer, A. (2015). The Bio:Fiction film festival: Sensing how a debate about synthetic biology might evolve. <i>Public Understanding of Science</i>, 24(5), 619-635. [<a href="#">Cornell library access</a>]</li> </ul> <p>DUE, Thursday, 25 March, 5:00 pm: Science in culture analysis (short paper)</p>
8	30 Mar 1 Apr	<p><b>Science in Culture: Television</b></p> <ul style="list-style-type: none"> <li>● LaFollette, M. C. (2012). <i>Science on American Television: A History</i>. Chicago: University of Chicago Press. (chapters 1-4, 15) [on Canvas]</li> <li>● Steinke, J., &amp; Long, M. (1996). A Lab of Her Own? Portrayals of Female Characters on Children's Educational Science Programs. <i>Science Communication</i>, 18(2), 91-115. [<a href="#">Cornell library access</a>]</li> <li>● Fahy, D. (2013). The Chemist as Anti-Hero: Walter White and Sherlock Holmes as Case Studies. In D. J. Nelson, K. R. Grazier, J. Paglia, &amp; S. Perkowitz (Eds.), <i>Hollywood Chemistry</i> (pp. 175-188). Washington: American Chemical Society. [<a href="#">link</a>]</li> <li>● Weitekamp, M. A. (2017). The image of scientists in The Big Bang Theory. <i>Physics Today</i>, 70(1), 40-48. doi:10.1063/PT.3.3427 [<a href="#">link</a>]</li> </ul> <p>NOTE: No class on Thursday, April 1<sup>st</sup> ...APRIL FOOLS! (Yes, we will have class.)</p>

9	6 Apr 8 Apr	<p><b>Science in culture: The Internet</b></p> <ul style="list-style-type: none"> <li>● Allgaier, J. (2013). On the Shoulders of YouTube: Science in Music Videos. <i>Science Communication</i>, 35(2), 266-275. [<a href="#">Cornell library access</a>]</li> <li>● Thelwall, M., &amp; Mas-Bleda, A. (2018). YouTube science channel video presenters and comments: female friendly or vestiges of sexism? <i>Aslib Journal of Information Management</i>, 70(1), 28-46. [<a href="#">link</a>]</li> <li>● Landrum, Asheley R., &amp; Olshansky, Alex. (2020). Third-Person Perceptions and Calls for Censorship of Flat Earth Videos on YouTube. <i>Media and Communication</i>, 8(2), online only. <a href="https://doi.org/10.17645/mac.v8i2.2853">https://doi.org/10.17645/mac.v8i2.2853</a> [<a href="#">link</a>]</li> <li>● Review <a href="https://www.reddit.com/r/askscience/">https://www.reddit.com/r/askscience/</a> and <a href="https://www.quora.com/topic/Science">https://www.quora.com/topic/Science</a>. The following article might be useful: Baram-Tsabari, A., Sethi, R. J., Bry, L., &amp; Yarden, A. (2006). Using questions sent to an Ask-A-Scientist site to identify children's interests in science. <i>Science Education</i>, 90(6), 1050-1072. [<a href="#">link</a>]</li> </ul> <p>DUE, Thursday, 8 April, 5:00 pm: Movie review (short paper)</p>
10	13 Apr 15 Apr	<p><b>Science in culture: Humor</b></p> <ul style="list-style-type: none"> <li>● Riesch, H. (2014). Why did the proton cross the road? Humour and science communication. <i>Public Understanding of Science</i>. 24(7), 768-775. [<a href="#">Cornell library access</a>]</li> <li>● Stemwedel, J. D. (2013). #Overlyhonestmethods: Ethical implications when scientists joke with each other on public social media. In J. Goodwin, M. F. Dahlstrom, &amp; S. Priest (Eds.), <i>Ethical issues in science communication: A theory-based approach</i> (pp. 287-298). Charleston, SC: CreateSpace. [on Canvas]</li> <li>● Feldman, L. (2013). Cloudy with a Chance of Heat Balls: The Portrayal of Global Warming on The Daily Show and The Colbert Report. <i>International Journal of Communication</i>, 17, 430-451. [<a href="#">link</a>]</li> </ul> <p>Some experiment reports</p> <ul style="list-style-type: none"> <li>● Yeo, Sara K., Cacciatore, Michael A., Su, Leona Yi-Fan, McKasy, Meaghan, &amp; O'Neill, Liane. (2021). Following science on social media: The effects of humor and source likability. <i>Public Understanding of Science</i>, published online ahead of print, <a href="https://doi.org/10.1177/0963662520986942">https://doi.org/10.1177/0963662520986942</a> [<a href="#">Cornell library access</a>]</li> <li>● Skurka, Chris, Niederdeppe, Jeff, &amp; Nabi, Robin. (2019). Kimmel on Climate: Disentangling the Emotional Ingredients of a Satirical Monologue. <i>Science Communication</i>, 41(4), 394-421. [<a href="#">Cornell library access</a>]</li> </ul> <p>Let's also make a list of shows to watch -- several of John Oliver's come to mind.</p>



11	20 Apr 22 Apr	<p><b>Science in culture: Politics</b></p> <ul style="list-style-type: none"> <li>● McCray, W. P. (2012). California Dreamin': Visioneering the Technological Future. In V. Janssen (Ed.), <i>Minds and Matters: Technology in California and the West</i> (pp. 347-378). Berkeley: University of California Press. [<a href="#">link</a>]</li> <li>● Besley, John C., Hardy, Bruce W., Tallapragada, Meghnaa, &amp; Yuan, Shupe. (2019, 11 January). Calling it a 'war on science' has consequences. The Conversation. <a href="https://theconversation.com/calling-it-a-war-on-science-has-consequences-108302">https://theconversation.com/calling-it-a-war-on-science-has-consequences-108302</a></li> <li>● Wolfe, Audra. (2020, 27 October). All together now: Science is political. Never Just Science. <a href="https://neverjustscience.substack.com/p/all-together-now-science-is-political">https://neverjustscience.substack.com/p/all-together-now-science-is-political</a> (and follow the links to read editorials)</li> </ul> <p>DUE, ~20 April: Final paper proposal</p> <p>NOTE: 23 April, 26 April are wellness days</p>
12	27 Apr 29 Apr	<p><b>Science and celebrity culture</b></p> <ul style="list-style-type: none"> <li>● Fahy, D., &amp; Lewenstein, B. V. (2014). Scientists in popular culture. In M. Bucchi &amp; B. Trench (Eds.), <i>Handbook of Public Communication of Science and Technology</i> (2nd ed., pp. 83-96). London: Routledge. [on Canvas]</li> <li>● Fahy, D. &amp; Caulfield, T. (2016). Science, Celebrities, and Public Engagement. <i>Issues in Science &amp; Technology</i>, 32(4), 24-26. [<a href="#">link</a>]</li> <li>● Akin, H., Hardy, B. W., Scheufele, D. A., &amp; Brossard, D. (2017, 25 April). Can Bill Nye – or any other science show – really save the world? The Conversation, <a href="https://theconversation.com/can-bill-nye-or-any-other-science-show-really-save-the-world-76630">https://theconversation.com/can-bill-nye-or-any-other-science-show-really-save-the-world-76630</a>.</li> <li>● And some short pieces about science communication and #MeToo <ul style="list-style-type: none"> <li>○ Torres, P. (2018, 23 February). The Krauss Debacle: More Allegations Surface. Retrieved from <a href="https://medium.com/@philosophytorres/here-are-what-some-folks-are-saying-about-the-recent-allegations-against-lawrence-krauss-e4c444b2d715">https://medium.com/@philosophytorres/here-are-what-some-folks-are-saying-about-the-recent-allegations-against-lawrence-krauss-e4c444b2d715</a></li> <li>○ Weisenstein, K. (2019, 4 January). Neil DeGrasse Tyson Is Canceled (for Now) Amid His #MeToo Reckoning. Retrieved from <a href="https://www.vice.com/en_us/article/59vv58/neil-degrasse-tyson-is-canceled-for-now-amid-his-metoo-reckoning">https://www.vice.com/en_us/article/59vv58/neil-degrasse-tyson-is-canceled-for-now-amid-his-metoo-reckoning</a></li> </ul> </li> </ul> <p>DUE, Thursday, 29 April, 5:00 pm: Book review</p>

13	4 May 6 May	<b>Science and visual culture</b> <ul style="list-style-type: none"> <li>Gouyon, J.-B. (2014). Making science at home: visual displays of space science and nuclear physics at the Science Museum and on television in postwar Britain. <i>History and Technology</i>, 30(1-2), 37-60. <a href="#">[link]</a></li> <li>Bucchi, M., &amp; Saracino, B. (2016). “Visual Science Literacy”. <i>Science Communication</i>, 38(6), 812-819. <a href="#">[link]</a></li> <li>Locke, S. (2013). Colouring in the “black-box”: Alternative renderings of scientific visualisations in two comic book cosmologies. <i>Public Understanding of Science</i>, 22(3), 304-320. <a href="#">[link]</a></li> <li>Wang, Guoyan, Wang, Lingfei, &amp; Shen, Jiafei. (2021). Food to politics: Representations of genetically modified organisms in cartoons on the Internet in China. <i>Public Understanding of Science</i>, [online ahead of print] <a href="https://doi.org/10.1177/0963662520983564">https://doi.org/10.1177/0963662520983564</a> <a href="#">[Cornell library access]</a></li> </ul> <p>DUE, Tuesday, 4 May, 5:00 pm: Draft final paper</p>
14	11 May 13 May	<b>Science and...YOUR culture</b> <ul style="list-style-type: none"> <li>TBD</li> <li>Consider: <a href="http://guerillascience.org/">http://guerillascience.org/</a></li> </ul>
Finals	19-25 May	<b>DUE: Final paper due at time specified for this course</b>