



Cornell University

## **Comm 4660/STS 4661: Public Communication of Science & Technology Spring 2019**

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This syllabus (including any updates) is also available through Cornell's Canvas site  
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### **Professor**

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### **Office hours**

Thursday, 1:00-3:00 in Morrill 303  
and happily by appointment

### **Class time and location**

Tues & Thurs, 8:40-9:55 am  
Plant Science 141

### **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? 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 (especially in the United States)
- 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 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 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 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). 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, electronic bulletin board participation, your activity as a discussion leader, and short reading response assignments during the semester; 40% on short during-the-semester papers; and the remaining 30% will depend on your final paper (exact format to be determined).

### **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.
2. Short papers
  - a. 24 January: What do you think science communication is? (1-2 paragraphs)
  - b. 5 February: Science museum visit reflection (1 page)
  - c. 12 February: Short reflection assignment (1 page)
  - d. 5 March: Science in culture analysis (1-2 pages)
  - e. 28 March: Movie review (1-2 pages)
  - f. 18 April: Book review (1-2 pages)
3. Final paper
  - a. 11 April: Paper proposal
  - b. 25 April: Draft paper
  - c. Finals week: Final paper (10-15 pages)

### **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 (especially 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 some 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 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 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 or other personal situations, 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 CAPS (Counseling & Psychological Services), <https://health.cornell.edu/services/counseling-psychiatry>
- Undocumented/DACA Student Support, write to Kevin Graham ([Kevin.Graham@Cornell.edu](mailto:Kevin.Graham@Cornell.edu)) and a list of campus resources can be found here: <https://dos.cornell.edu/undocumented-daca-support/undergraduate-admissions-financial-aid>
- Learning Strategies Center, <http://lsc.cornell.edu/>

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

### Course plan, as of 19 January 2019

Because of my travel schedule, this semester (especially early on) will be a bit choppy. But you'll have things to do on the weeks that we don't meet.

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	22 Jan 24 Jan	<b>Intro: Science and Culture</b> <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, available at <a href="https://livescienceevents.org/portfolio/read-the-report/">https://livescienceevents.org/portfolio/read-the-report/</a></li> </ul> <p>DUE, 25 January: Brief reflection on science and public culture</p>
2	29 Jan 31 Jan	<b>Science and culture</b> <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><b>NOTE: No class on 31 January.</b> Instead, sometime this week visit the <a href="#">Sciencenter</a> or the <a href="#">Museum of the Earth</a>.</li> </ul>
3	5 Feb 7 Feb	<b>How to analyze science and culture</b> <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), available through Cornell library: <a href="http://link.springer.com.proxy.library.cornell.edu/book/10.1057%2F978-1-137-50366-4">http://link.springer.com.proxy.library.cornell.edu/book/10.1057%2F978-1-137-50366-4</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="#">link</a>]</li> </ul> <p>DUE, 5 February: Science museum visit reflection</p>
4	12 Feb 14 Feb	<b>Science, culture, and communication</b> <ul style="list-style-type: none"> <li><b>NOTE: No regular class meetings this week</b></li> <li>A set of virtual activities will be offered</li> </ul>

		<ul style="list-style-type: none"> <li>At the end of this week, a new short report will be released about public engagement in science. Though the topic is slightly off our main course arc, you'll get the link and should read it.</li> </ul> <p>DUE, 12 February: Brief reflection (topic to come)</p>
5	19 Feb 21 Feb	<p><b>Science in culture: Museums and literature</b></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="#">link</a>]</li> <li>Pandora, K. (2009). The Children's Republic of Science in the Antebellum Literature of Samuel Griswold Goodrich and Jacob Abbott. <i>Osiris</i> (series 2), 24, 75-98. [<a href="#">link</a>]</li> </ul>
6	26 Feb 28 Feb	<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="#">link</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> <p><b>NOTE: No class on 26 February -- February break</b></p>
7	5 Mar 7 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="#">link</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="#">link</a>]</li> <li>Allgaier, J. (2019). Cool Geeks, Dangerous Nerds, Entrepreneurial Scientists and Idealistic Physicians? Exploring Science and Medicine</li> </ul>

		<p>in Popular 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. 25-39). Cham: Springer International Publishing. <a href="#">[link]</a></p> <p>DUE, 5 March: Science in culture analysis (short paper)</p>
8	12 Mar 14 Mar	<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) <a href="#">[on Canvas]</a></li> <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>● 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="#">[link]</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>
9	19 Mar 21 Mar	<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="#">[link]</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>● NOTE: We probably won't have class on 21 Mar. In lieu of class, you should 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>
10	26 Mar 28 Mar	<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="#">[link]</a></li> <li>● Simis-Wilkinson, M., Madden, H., Lassen, D., Su, L. Y.-F., Brossard, D., Scheufele, D. A., &amp; Xenos, M. A. (2018). Scientists Joking on Social Media: An Empirical Analysis of #overlyhonestmethods. <i>Science Communication</i>, 40(3), 314-339. <a href="#">[link]</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</i></li> </ul>

		<p><i>science communication: A theory-based approach</i> (pp. 287-298). Charleston, SC: CreateSpace. [on Canvas]</p> <ul style="list-style-type: none"> <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> <li>Let's also make a list of shows to watch -- several of John Oliver's come to mind.</li> <li>And some hashtags to look at: #overlyhonestmethods, #serialkillerorscientist (and #scientistorserialkiller)</li> </ul> <p>DUE, 28 March: Movie review</p>
		<p><b>SPRING BREAK</b></p>
11	9 Apr 11 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>Wolfe, A. J. (2013, 23 August). Science diplomacy works, but only when it's genuine. Retrieved from <a href="https://www.theguardian.com/science/political-science/2013/aug/23/obama-science-foreign-policy">https://www.theguardian.com/science/political-science/2013/aug/23/obama-science-foreign-policy</a></li> <li>Additional readings to come</li> </ul> <p>DUE, 11 April: Final paper proposal</p>
12	16 Apr 18 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</li> </ul> </li> </ul>



		<p>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></p> <p>DUE, 18 April: Book review</p>
13	23 Apr 25 Apr	<p><b>Science and visual culture</b></p> <ul style="list-style-type: none"> <li>• I've had trouble finding good readings on visual culture of science. So, here are several sites with amazing images, followed by a couple of more analytical articles. What themes do you find?</li> <li>• <a href="https://www.nationalgeographic.com/photography/best-of-2018/best-pictures-2018/">https://www.nationalgeographic.com/photography/best-of-2018/best-pictures-2018/</a></li> <li>• <a href="https://gizmodo.com/see-the-glorious-winners-of-the-2018-astronomy-photogra-1829940052">https://gizmodo.com/see-the-glorious-winners-of-the-2018-astronomy-photogra-1829940052</a></li> <li>• <a href="http://ejheller.jalbum.net/">http://ejheller.jalbum.net/</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> </ul> <p>DUE, 25 April: Draft final paper</p>
14	30 Apr 2 May	<p><b>Science and...YOUR culture</b></p> <ul style="list-style-type: none"> <li>• TBD</li> <li>• Consider: <a href="http://guerillascience.org/">http://guerillascience.org/</a></li> </ul>
15	7 May	<p><b>Science, culture, and science communication</b></p> <ul style="list-style-type: none"> <li>• So, what did we do this semester?</li> </ul>
Finals		<b>DUE: Final paper due at time specified for this course</b>