Public understanding of science
Genomics Salon, June 23, 2016
https://genomicssalon.wordpress.com/
Katherine Xue and Molly Gasperini

Upcoming events
Thursday, July 14: medicine and identity
Thursday, August 4: biotechnology and rhetorics of change

*** To limit email traffic on department lists, announcements and reminders about the genomics salon will be sent through the UW genomics salon google group. ***
To join, go to https://groups.google.com/forum/#!forum/uw-genomics-salon

Everyone agrees that science communication is important, but no one seems to agree how it should be done. Science communication–particularly science writing–is subject to criticism from multiple directions: for hype, for oversimplification, for inaccuracy, for uncritically taking scientists at their word. This session will explore the complications and contradictions of communicating science to the public. What do these criticisms suggest about how science communication is and should be done? What is it, really, that the public should know about science?

Below are two viewpoints that touch on different open issues in science communication to provide a starting point for discussion. How do these points resonate with your own experiences?

viewpoint 1:
Science journalists are frequently criticized for distorting and overhyping research in the interest of storytelling, and people often assume an implicit tradeoff between interest and accuracy. The issue of accuracy gets at the question of what the public needs to know about science. Too often, accuracy is shorthand for presenting scientific knowledge in a scientific context--the way scientists see it. Communication scholars have criticized what they call the "deficit model" of public understanding of science, in which scientists inscribe knowledge on the blank slate of the public, and public skepticism about science results solely from ignorance.

We need science communication that engages the public in a more nuanced, critical understanding of science, rather than just communicating technical knowledge. This means placing scientific research in a social context and thinking deeply about what the public needs to know. It also means promoting two-way conversations between scientists and laypeople.

viewpoint 2:
Within science, we are pursuing incredibly privileged lives of education, discovery, and truth seeking. The public is paying for us to live these lives; for our education, our reagents, our salaries. We need to engage the public in our community and the knowledge that they're paying for. As recipients of their financial support, not only do we have an ethical responsibility to share our scientific lives with the public, but also need to build trust in science to ensure its future funding.

The public doesn't need to learn a scientific fact every time they talk with a scientist about science. Whether it's at the Thanksgiving table or at a bar, simply be prepared to chat about the scientific life with anyone/everyone you meet. Have a dialogue, tell a story, with emotions, embellishments, and drama. Share stories of science culture, what research is like, how the science community functions, how questions are thought of and answered, what purpose your research is serving. Even just by simply personifying who a scientist is, you can contribute to that person's perception of the enigmatic 'scientist'. For a brief, subtle moment, that person is engaged in the scientific community they're supporting, which is ultimately working to benefit the society we're all a part of.

further reading

Atul Gawande, "**The Mistrust of Science**" *The New Yorker* (June 2016)
http://www.newyorker.com/news/news-desk/the-mistrust-of-science
"Today, you become part of the scientific community, arguably the most powerful collective enterprise in human history. In doing so, you also inherit a role in explaining it and helping it reclaim territory of trust at a time when that territory has been shrinking."

Siddhartha Mukherjee, "**Same But Different**" *The New Yorker* (May 2016)
http://www.newyorker.com/magazine/2016/05/02/breakthroughs-in-epigenetics
"Why are identical twins different? Because, you might answer, fate impinges differently on their bodies. [...] We know that the genome can manufacture identity; the trickier question is how it gives rise to difference."

Jerry Coyne, response to Siddhartha Mukherjee, "**The New Yorker screws up big time with science: researchers criticize the Mukherjee piece on epigenetics**" *Why Evolution Is True* (May 2016)
https://whyevolutionistrue.wordpress.com/2016/05/05/the-new-yorker-screws-up-big-time-with-science-researchers-criticize-the-mukherjee-piece-on-epigenetics/
"The criticism of Mukherjee's piece, coming from scientists who really are experts in gene regulation, shows a lack of care on the part of Mukherjee and the New Yorker: both a superficial and misleading treatment of the state of the science, and a failure of the magazine to properly vet this piece."

Michael Schulson, "**How Journalists Can Help Hold Scientists Accountable**" *Pacific Standard* (March 2016)
https://psmag.com/how-journalists-can-help-hold-scientists-accountable-324e375bbe26
"As various commentators have observed, there's probably no field of journalism that's less skeptical, less critical, less given to investigative work, and less independent of its sources than science reporting."

Stephen Hilgartner, "**The Dominant View of Popularization: Conceptual Problems, Political Uses**" *Social Studies of Science* (August 1990)
https://cbs.asu.edu/sites/default/files/PDFS/Hilgartner%20Dominant%20View%20of%20Popularization.pdf
"Scientific experts enjoy great flexibility in public discourse. [...] When it suits their purposes, they can issue simplified representations for broader audiences [and] invest these representations with the authority of the cultural symbol 'Science.' On the other hand, scientists at all times can draw on the notion of 'distortion' to discredit publicly-available representations."

Susanna Priest, "**Critical Science Literacy: What Citizens and Journalists Need to Know to Make Sense of Science**" *Bulletin of Science, Technology, and Society* (October 2013)
http://bst.sagepub.com/content/33/5-6/138.abstract
"What both citizens and journalists really need to know are which facts, observations, and conclusions are most valid (and most reliable and relevant) to our individual and collective decisions. [...] People need to know something about the sociology of science, as well as something about the philosophy of science, to navigate a world full of competing truth claims about science."