POL374: Science, Technology and Politics
Spring 2021

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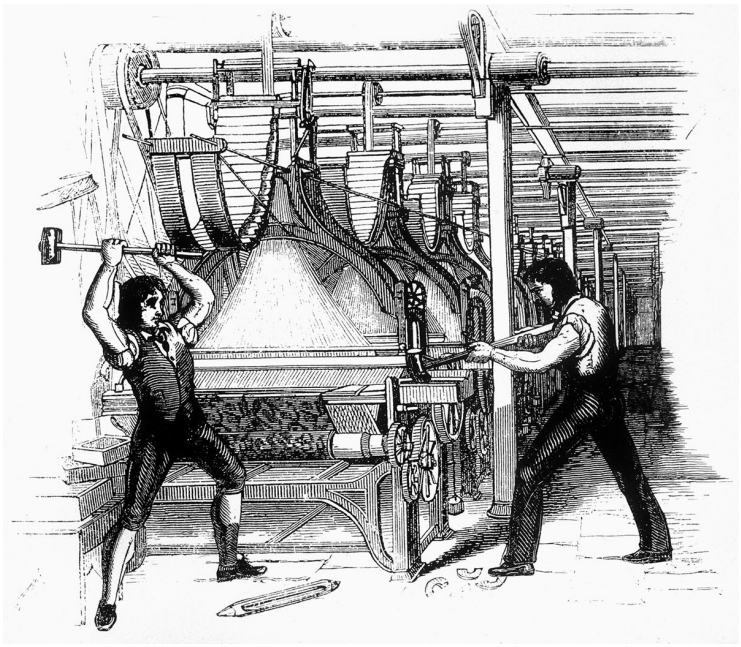
x 7656
Office Hours: Tuesday 10:00am to Noon or
By arrangement

In-person: Kaul Auditorium
Mondays and Wednesdays
13:25-14:45



Course Summary:

What constitutes expertise and knowledge? Why and how are some claims based on science accepted and others dismissed? Why are some forms of technology embraced when others are consigned to footnotes in history and others shift culture? And how does all of this intersect with politics and policy? These are some of the questions we will explore this term and work to understand the theories that work to help make sense of these questions.

Course Goals:

The course introduces students to a series of concepts that emerge from science and technology studies. This course will review the interactions between science, technology, expertise and politics. In particular we will survey various theories including the social construction of technology; the sociology of scientific knowledge;

the role of expertise and knowledge in democracies; and contested forms of knowledge claims. At the same time we will work to make room for diverse views points on what counts for knowledge and science outside of Western perspectives.

Learning Objectives:
This is the part you need to hold me accountable for! By the end of the course students should be able to:

- Distinguish multiple theories on the nature of technology in society.
- Critically engage key arguments in science and technology studies.
- Be able to integrate models of politics and democracy with models of science and knowledge.
- Construct and make a novel argument using the concepts from this course in a written project.

Brief Description of Assignments
Three main assignments are expected of you this term. More detailed handouts will be provided. Assignments are due at the beginning of class for the day listed on the schedule! The assignments are:

Discussion
Be prepared to participate in class. This means understanding the reading and being prepared to discuss. Bring your readings and notes to class, this counts as part of participation!

As noted on the readings section I will also expect you to annotate and comment on each reading posted on Hypothesis via Moodle by 9:00am the day we discuss the reading. I will be tallying comments and annotations on Hypothesis by student. So – I expect one annotation a week at a minimum. We will have a hands-on workshop with this tool in Week 1 to make sure everyone is comfortable with it.

Office Hours
In light of the unique and distributed nature of our COVID-19 learning environment I am also assigning two separate office hour sessions this term. Make sure you book a meeting with me in the first and second half of the term. It can be a casual meeting or you can bring questions and challenges to me. But I want a "face-to-face" with you at **least twice this term**.

Discussion Facilitation
A goal for this course is for you to understand and develop your own appreciation of the models and arguments here. There are many moving concepts and theories that we will work with. To make sense of these, through the course, you will be charged with leading two of our weekly discussions.

To do this I ask you to develop a one-page (single spaced) reflection on the week's readings that provides a synthesis of the key issues, problems, and questions that emerge from the week's readings in class as well as 2-3 discussion questions. These will be due Monday by 9:00 am of the week you are assigned and submitted via Moodle.

Term Paper

The final assignment for the term is your term paper. You are free to choose a topic of your desire, so long as it is in the bounds of this course's goals and objectives. I ask you formulate a proposed title and abstract by Week 9; an annotated bibliography by Week 11; a draft paper by Week 13 and the final during finals week. The paper is expected to be 15-25 pages.

Learning in the COVID-19 Environment:

The upending of our lives due to the COVID-19 Pandemic is real and hard on many levels. I am mindful of the myriad of challenges this has presented and will continue to present for all of us. I also am mindful that life is not as simple – so please reach out to me if challenges arise.

COVID Classroom Protocols

First and foremost, your candor on symptoms and your compliance with masks and hygiene matter greatly to the success of our class, and the College this term. Please do not hesitate to play it safe if you suspect symptoms. Masks are critical – no excuses for forgetting them or having them fail. Carry a backup!

We will be meeting in Kaul Auditorium. This room is set up exactly for the number of students registered in the course. This is a big space – and we will need to experiment a little to get it just right. Expect breakout groups and some small group techniques to make this all work!

I also ask you to refrain from eating or drinking (unless policy changes where we can re-invite tea or coffee into our classes.)

Online Meeting

Near the end of the term we will transition to online learning as we did last term. It is also possible that events may cause a shift to online before then. If so I will move us to Zoom and post that information to Moodle. If you are asked to isolate, please let me know and we can work on a solution to keep you involved!

Course Policies

Please review these policies – they guide expectations for all students so that its fair for everyone.

Attendance: We are learning through readings, discussions, and our own research. All of this requires a community to test ideas, explore theories and to discover new

concepts. So attendance is critical! It helps you, it helps your fellow scholars, and it is required. If something comes up – the best thing you can do is talk to me. Email me or stop me after class.

Late Work: Deadlines are listed on the schedule for assignments. All researchers and scholars struggle with meeting deadlines. But the mark of a great academic (and professional) is not just being intelligent but also delivering their thoughts on time. Meeting deadlines is not an arbitrary requirement – it is essential to a community of scholars. Permission is easier to ask for than forgiveness.

Classroom and Personal Conduct: Thorough and exciting learning settings are often a little uncomfortable. Ideas will fly, arguments will fail, and succeed. Sometimes it's a little embarrassing. We are all coming from different places in life, and with different experiences that are all valid. Don't take bumps in the road personally – it is part of the process.

At the same time, there is a limit to how far arguments or claims can go.

Engage ideas – not individuals.

Personal attacks are known as *ad hominem* – and while they are a staple of certain contemporary rhetoric but they are not acceptable here. Prejudicial, discriminatory statements, or hurtful attacks will be called out – and will become a learning moment.

As an instructor, one of my responsibilities is to help create a safe learning environment for my students and for the campus as a whole. Please be aware that as a faculty member, I have a responsibility to report any instances of sexual harassment, sexual violence and/or other forms of prohibited discrimination. If you would rather share information about sexual harassment, sexual violence or discrimination with a confidential employee who does not have this reporting responsibility, the medical and counseling staff at the Health and Counseling Center is normally exempted from these requirements. For more information about Title IX, which regulates the role of Colleges and reporting, please visit the Reed College Title IX program page.

Technology: I have fully gone digital myself – I work, read and take notes on my devices. But there is something these artifacts do to us as people, they can create distance or provide an escape from communication. Please, make an extra effort to listen, make eye contact and stay engaged. Sometimes its ok to just listen – and listen actively. For those online this is even harder – I appreciate your efforts to use non-verbal tools to stay engaged! Emojis, reactions, chat windows, thumbs up, maybe even little signs… anything to help keep that energy going.

Plagiarism: Scholars seek to explore new ideas and communicate them effectively. This takes an enormous level of work – so taking these ideas and representing them

as your own is serious. Plagiarism is not just copying text – it includes paraphrasing or rewording ideas without attributing them to the source.

For a discussion of plagiarism, see here:
https://www.reed.edu/writing/citation_and_style_guide.html#Plagiarism

Disability Resources/Support: I am committed to fostering mutual respect and full participation for all students. My goal is to create a learning environment that is equitable, accessible, inclusive, and welcoming. If any aspects of instruction or course design result in barriers to your inclusion or learning, please notify me. I know as we move into this new COVID-19 era we are making assumptions as faculty about "what works" and please let me know if a design impacts your ability to participate! The Disability and Accessibility Resources office provides reasonable accommodations for students who encounter barriers in the learning environment.

Life, School and Chaos: Balancing school, life, work, and the world around us can be a challenge. The class and your commitments here are very important – and others depend on them. The Reed academic life is a strenuous one, but the worst thing you can do is have challenges and not ask for help. We can only address these challenges if you ask!

Readings:

All readings will be on Moodle and digital. This course will use Hypothesis – an online reading and annotation tool – to facilitate active reading in team settings. Use of this tool will be a component in your evaluation for course participation. Annotating and organizing literature is a constant challenge. Increasingly the options for effectively managing literature and articles online have become more mature. Hypothesis is a great tool, and includes some social media-like functionality. We will use it as a part of Moodle – but it is also a great standalone research tool. Explore the tool here: https://web.hypothes.is/education/

Week 1: Questions on Science and Technology (1/25)

Berlin, Isaiah. 2013. "In the Pursuit of the Ideal." In *The Crooked Timber of Humanity: Chapters in the History of Ideas*, Princeton ; Oxford: Princeton University Press, 1–20. [20 pages]

Merton, Robert King. 1973. "Science and the Social Order" and "The Normative Structure of Science." *The Sociology of Science: Theoretical and Empirical Investigations*. Chicago: University of Chicago Press. 254-266 and 267-278 [21 pages]

Winner, Langdon. 1989. "Technologies as a Form of Life" and "Do Artifacts have Politics?" In *The Whale and the Reactor: A Search for Limits in an Age of High Technology*. 1st ed. University of Chicago Press. 3-39 [37 pages]

Week 2: Progress, Technology and Society (2/1)

Allenby, Braden R., and Daniel R Sarewitz. 2013. "Ch 3: Level I and II Technology: Effectiveness, Progress, and Complexity;" and "Ch 4: Level III Technology: Radical

Contingency in Earth Systems" In *The Techno-Human Condition*. Cambridge, MA: MIT Press. [54 pages]

Collingridge, David. 1980. "The Dilemma of Control" In *The Social Control of Technology*. Frances Pinter. 13-21 [9 pages]

Marx, Leo. 1987. "Does Improved Technology Mean Progress." Technology Review 90(1): 33–41. [9 pages]

Nahuis, Roel, and Harro Van Lente. 2008. "Where Are the Politics? Perspectives on Democracy and Technology." *Science, Technology, & Human Values* 33(5): 559–81. [24 pages]

Week 3: Social Construction of Facts and Technology (2/8)

Bijker, Wiebe E. 1995. "King of the Road: The Social Construction of the Safety Bicycle." In *Of Bicycles, Bakelites, and Bulbs: Toward a Theory of Sociotechnical Change*, Inside technology, Cambridge, Mass: MIT Press, 19–100. [81 pages]

Pinch, Trevor J., and Wiebe E. Bijker. 1984. "The Social Construction of Facts and Artefacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other." *Social Studies of Science* 14(3): 399–441. [42 pages]

Winner, Langdon. 1993. "Upon Opening the Black Box and Finding It Empty: Social Constructivism and the Philosophy of Technology." *Science, Technology, & Human Values* 18(3): 362–78. [17 pages]

Week 4: Actor-Network Theory (2/15)

Latour, Bruno. 1988. "How to Write 'The Prince' for Machines as Well as Machinations." In *Technology and Social Change*, ed. Brian Elliott. Edinburgh, UK: Edinburgh University Press, 20–43. [44 pages]

Latour, Bruno. 1991. "Technology Is Society Made Durable." In *A Sociology of Monsters : Essays on Power, Technology, and Domination*, Sociological review monograph ; 38, ed. John Law. London ; New York: Routledge.

Law, J. 2008. "Actor Network Theory and Material Semiotics." *The New Blackwell Companion to Social Theory*: 141–58. [18 pages]

Passoth, Jan-Hendrik, and Nicholas J. Rowland. 2010. "Actor-Network State Integrating Actor-Network Theory and State Theory." *International Sociology* 25(6): 818–41. [24 pages]

Week 5: Science and the State, Part I (2/22)

Carroll, Patrick. 2009. "Articulating Theories of States and State Formation." *Journal of Historical Sociology* 22(4): 553–603. [51 pages]

Scott, James C. 1999. "Nature and Space" In *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*. Yale University Press. 11-52 [41 pages]

Week 6: Science and the State, Part II (3/1)

Mukerji, Chandra. 2003. Intelligent Uses of Engineering and the Legitimacy of State Power. *Technology and Culture* 44(4): 655-676. [32 pages]

Scott, James C. 1999. "Cities, People and Language" In *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*. Yale University Press. 53-83 [31 pages]

Week 7: Society and Machinations (3/8 – No class 3/10) *

Shapin, Steven, and Simon Schaffer. 1985. "Understanding Experiments" and "Seeing and Believing" In *Leviathan and the Air-Pump: Hobbes, Boyle, and the Experimental Life*. Princeton, N.J: Princeton University Press, 1-79. [80 pages]
Note: Chapter One includes an outline of the book, skim that, but not critical.

Optional: Bhorat, Ziyaad. 2019. Automata in Hobbes: Three Heads of Cerberus. Forthcoming publication. [23 pages]
Note: This is a nice pairing with the documentary and the reading – it's a deeper dive on political philosophy.

Automata Documentary: https://www.youtube.com/watch?v=YAg66jrvpHA

Week 8: Limits of Knowledge (3/15)

Cartwright, Nancy. 1999. "Introduction" In *The Dappled World: A Study of the Boundaries of Science*. Cambridge University Press, 1-19. [20 pages]

Latour, Bruno. 1999. "'Do You Believe in Reality?' News from the Trenches of Science Wars," and "Circulating Reference" In *Pandora's Hope : Essays on the Reality of Science Studies*, Cambridge, Mass.: Harvard University Press1 - 79 [80 pages]

Sarewitz, Daniel. 2012. "Against Holism." In *The Oxford Handbook of Interdisciplinarity*, eds. Robert Frodeman, Julie Thompson Klein, and Carl Mitcham. Oxford University Press, 65-75. [11 pages]

Week 9: Numbers, Maps and Populations (3/22)
****TERM PAPER TITLE, ABSTRACT DUE****

Anderson, Benedict. 2006. "Census, Map, and Museum" In *Imagined Communities: Reflections on the Origin and Spread of Nationalism*. New Edition. Verso,163-186. [24 pages]

Law, John. 2009. "Seeing Like a Survey." *Cultural Sociology* 3(2): 239–56. [18 pages]

Krippendorff, Klaus. 2005. "The Social Construction of Public Opinion." In *Kommunikation Über Kommunikation: Theorie, Methoden Und Praxis*, eds. E. Wienand, J. Westerbarkey, and A. Scholl. Wiesbaden: VS-Verlag, 129–49. [21 pages] http://repository.upenn.edu/cgi/viewcontent.cgi?article=1077&context=asc_papers.

Porter, Theodore M. 1996."Introduction: Cultures of Objectivity", "Chapter 1: A World of Artifice", and "Chapter 2: How Social Numbers are Made Valid" In *Trust in Numbers*. Princeton University Press, 1-48. [49 pages]

Week 10: Public and Science (3/29)

Callon, Michel. 1986. "Some Elements of a Sociology of Translation: Domestication of the Scallops and the Fishermen of St Brieuc Bay." In *Power, Action and Belief: A New Sociology of Knowledge*, ed. John Law. London: Routledge, 196–233. [38 pages]

Fiorino, Daniel J. 1990. "Citizen Participation and Environmental Risk: A Survey of Institutional Mechanisms." *Science, technology & human values* 15(2): 226–43. [18 pages]

Rowe, Gene, and Lynn J. Frewer. 2000. "Public Participation Methods: A Framework for Evaluation." *Science, technology & human values* 25(1): 3–29. [27 pages]

Sellers, Christopher. 2004. The Artificial Nature of Fluoridated Water: Between Nations, Knowledge and Material Flows. Osiris 19: 182-200. [19 pages]

Wynne, Brian. 1992. Misunderstood Misunderstandings: Social Identities and Public Uptake of Science. Public Understanding of Science 1(3): 281-304. [24 pages]

Week 11: Civic Epistemologies (4/5)

****ANNOTATED BIBLIOGRAPHY DUE****

Jasanoff, Sheila. 2003. "Technologies of Humility: Citizen Participation in Governing Science." *Minerva* 41(3): 223–44. [22 pages]

Miller, Clark A. 2008. "Civic Epistemologies: Constituting Knowledge and Order in Political Communities." *Sociology Compass* 2(6): 1896–1919. [24 pages]

Muñoz-Erickson, Tischa A. 2014. "Co-Production of Knowledge–Action Systems in Urban Sustainable Governance: The KASA Approach." *Environmental Science & Policy* 37: 182–91. [10 pages]

Callon, Michel, Pierre Lascoumes, and Yannick Barthe. 2009. "In Search of a Common World" In *Acting in an Uncertain World: An Essay on Technical Democracy*. Cambridge, Mass.: MIT Press, 107-152. [46 pages]

Week 12: Environment and Constructions (4/19)

Gross, Matthias. 2010. "Knowledge Production and the Recurrence of Ignorance." In *Ignorance and Surprise: Science, Society, and Ecological Design*. New. The MIT Press, 49-81. [33 pages]

Lave, Rebecca. 2011. "Circulating Knowledge, Constructing Expertise." In *Knowing Nature: Conversations at the Intersection of Political Ecology and Science Studies*, eds. Mara Goldman, Paul Nadasdy, and Matt Turner. Chicago; London: University of Chicago Press, 263–79. [17 pages]

Robertson, Morgan M. 2004. "The Neoliberalization of Ecosystem Services: Wetland Mitigation Banking and Problems in Environmental Governance." *Geoforum* 35(3): 361–73. [13 pages]

Lach, Denise, Steve Rayner, Helen Ingram. 2005. Taming the Waters: Strategies to Domesticate the Wicked Problems of Water Resource Management. International Journal of Water 3(1). [17 pages]

Yearley, Steven. 1995. "The Environmental Challenge to Science Studies." In *Handbook of Science and Technology Studies*, eds. Sheila Jasanoff, Gerald E. Markle, James C. Petersen, and Trevor J. Pinch. Thousand Oaks, Calif: SAGE Publications, 457–79. [23 pages]

Week 13: Boundaries (4/26)

****PAPER DRAFT (See Notes!)****

Guston, David H. 1999. "Stabilizing the Boundary between US Politics and Science: The Rôle of the Office of Technology Transfer as a Boundary Organization." *Social Studies of Science* 29(1): 87–111. [26 pages]

Haas, Peter M. 1989. "Do Regimes Matter? Epistemic Communities and Mediterranean Pollution Control." *International Organization* 43(03): 377–403. [27 pages]

Miller, Clark. 2001. "Hybrid Management: Boundary Organizations, Science Policy, and Environmental Governance in the Climate Regime." *Science, Technology & Human Values* 26(4): 478–500. [33 pages]

Star, Susan Leigh, and James R Griesemer. 1989. "Institutional ecology, 'translations', and boundary objects: Amateurs and professionals in Berkeley's Museum of Vertebrate Zoology, 1907-39." *Social Studies of Science* 19: 387–420. [34 pages]

Week 14: Parting Thoughts (5/3)

****PAPER Workshop Session****

Funtowicz, Silvio O., and Jerome R. Ravetz. 1993. "Science for the Post-Normal Age." *Futures* 25(7): 739–55. [17 pages]

Scott, James C. 1999. "Thin Simplifications and Practical Knowledge: Metis; and Conclusion" In *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*. Yale University Press. 309-358. [50 pages]