

**American University – School of Public Affairs – Department of Public Administration & Policy  
Science, Technology, & Innovation Comprehensive Exam Reading List – as of 20 May 2015.  
Sorted into Categories—each entry only appears once, except in policy areas at the end.**

**Textbooks**

Muller, Richard A. 2008. *Physics for Future Presidents*. New York: Norton.

Muller, Richard A. 2013. *Energy for Future Presidents*. New York: Norton.

Neal, Homer A., Smith, Tobin L., & McCormick, Jennifer B. 2008. *Beyond Sputnik: U.S. science policy in the 21st century*. Ann Arbor: University of Michigan Press. ch1-9,11,13,15-20

**Analyzing Science, Technology, and Innovation Policy**

Branscomb, Lewis M., & Keller, James H. 1998. *Investing in innovation: Creating a research and innovation policy that works*. MIT Press.

David, Paul A., Hall, Bronwyn H., & Toole, Andrew A.. 2000. Is public R&D a complement or substitute for private R&D? A review of the econometric evidence. *Research Policy*. 29:497-529.

Faberberg, Jan., & Srholec, Martin. 2008. National Innovation Systems, Capabilities, and Economic Development. *Research Policy*. 37:1417-1435.

Lane, Julia. 2009. Assessing the Impact of Federal Science Funding. *Science*. 324:1273-1275.

Lane, Julia. 2010. Let's make science metrics more scientific. *Nature* 464, 488-489.

Organization for Economic Cooperation and Development. 2010. *Measuring innovation: A new perspective* Paris: OECD. ch1,2.

Rogers, Everett M. 2003. *Diffusion of innovations*. Free Press. 5th Edition.

Ruegg, Rosalie, & Feller, Irwin. 2003. *A toolkit for evaluating public R&D investment*, chapters 1-2, pp. 6-53. US Dept. of Commerce National Institute of Standards and Technology.

Schuck, Peter H. 2014. *Why government fails so often and how it can do better*. Princeton University Press.

**Role of Government**

Brooks, Harvey. 1995. The Evolution of U.S. Science Policy. Washington, in B.L.R. Smith & C.E. Barfield (eds.) *Technology, R&D, and the economy*. Washington DC: Brookings Institution. p.15-47.

Bush, Vannevar. 1945. *Science: The Endless Frontier*. A Report to the President. Washington, Government Printing Office . Ch 6. <http://www.nsf.gov/od/lpa/nsf50/vbush1945.htm>

Jasanoff, Shiela. 1990. *The fifth branch: Science advisors as policymakers*. Cambridge: Harvard University Press.

Kealey, Terrence. 1996. *The economic laws of scientific research*. MacMillan Press.

Kealey, Terrence. 2008. *Sex, science and politics: How people evolved to make money*. Random House.

Mazzucato, Mariana. 2014. *The entrepreneurial state: Debunking public vs. private sector myths*. Anthem.

Nelson, Richard. 1959. The Simple Economics of Basic Scientific Research. *Journal of Political Economy* 67:297-306.

### **Management, Tools, & Organizations**

Borins, Sandford F. 2014. *The persistence of innovation in government*. Washington DC: Brookings Institution Press.

Chopra, Aneesh. 2014. *Innovative State: How New Technologies Can Transform Government*. Atlantic Monthly Press.

Christensen, Clayton M. (1997). *The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail*. Highbridge Company.

Draper, William S. 2011. *The Startup Game: Inside the Partnership between Venture Capitalists and Entrepreneurs*. Palgrave Macmillan.

Hall, Bronwyn. 2004. *Innovation and diffusion*. NBER Working Paper #10212.

Light, Paul. 1998. *Sustaining innovation: Creating nonprofit and government organizations that innovate naturally*. Jossey-Bass.

Muirhead, Brian , & Simon, William L. 2004. *High velocity leadership: The Mars Pathfinder approach to faster, better, cheaper*. Babbage Press.

Richter, Jurith. 2004. Public-private partnerships for health: A trend with no alternatives? *Development*, 47(2): 43-48.

Teich, Albert H. 2008. Can administrative measures solve a political conflict? *Public Administration Review* 68(1): 19-22.

Vaughan, Diane. 1999. The role of the organization in the production of techno-scientific knowledge. *Social Studies of Science*. 29(6): 913-943.

Vernon, Ruttan. 2006. *Is war necessary for economic growth? Military procurement and technology development*. New York, NY: Oxford University Press. Chapters 2,5,6.

## **The Future**

Belfiore, Michael. 2009. *The department of mad scientists. How DARPA is remaking our world, from the Internet to artificial limbs*. New York, NY: Harper-Collins Publishers.

Bostrom, Nick. 2014. *Superintelligence: Paths, Dangers, Strategies*. United Kingdom: Oxford University Press.

Bryce, Robert. 2014. *Smaller faster lighter denser cheaper: How innovation keeps proving the catastrophists wrong*. Public Affairs.

Diamandis, Peter, & Kotler, Steven. 2015. *Bold: How to go big, create wealth, and impact the world*. Simon & Schuster.

Joy, Bill. 2000 Apr. Why the Future Doesn't Need Us. *Wired*.

Menzel, Peter, & D'Aluisio, Faith. 2000. *Robo sapiens: Evolution of a new species*. The MIT Press.

## **Society, Ethics & Communication of Science & Technology**

Amsterdamska, Olga. 1990. Surely you are joking, Monsieur Latour! *Science, Technology, and Human Values*. 15(4) p.495-504.

Calvert, Jane. 2006. What's Special about Basic Research? *Science, Technology, and Human Values*. 3:199-220.

Guston, David. 2000. Retiring the social contract for science. *Issues in Science and Technology*. 16(4): 32-36.

Hull, David. 1998 Dec 3. Scientists behaving badly. *The New York Review of Books*. p.24-30.

Latour, Bruno. 1999 [1983]. Give me a laboratory and I will raise the world, in M.Biagioli (ed.). *The Science Studies Reader*, p.258-275. New York, NY: Routledge.

Merton, Robert K. 1973. Normative structure of science, in *The sociology of science: Theoretical and empirical investigations*, p.254-278. Chicago: University of Chicago Press.

Winner, Langdon. 1980. Do artifacts have politics. *Daedalus* 109(1), 121-136.

Winner, Langdon. 1986. *The whale and the reactor: A search for limits in and age of high technology*. Chicago: University of Chicago Press. ch1, 2.

Wynne, Brian. 1996. Misunderstood misunderstandings: Social identities and public uptake of science. Cambridge, in Alan Irwin and Brian Wynne (eds.) *Misunderstanding Science?* Cambridge University Press.

## **Imagination, Culture, & Values**

Douglas, Mary., and Wildavsky, Aaron. 1982. *Risk and culture: An essay on the selection of technical and environmental dangers*, selected readings. University of California Press.

Lambright, Henry. 2002. *Managing Big Science: A Case Study of the Human Genome Project* IBM: New ways to manage series. <http://www.businessofgovernment.org/report/managing-big-science-case-study-human-genome-project>

Launius, Roger, & McCurdy, Howard. 2008. Homo sapiens, transhumanism, and the postbiological Universe, in *Robots in Space*, chapter 6. John Hopkins University Press.

Pinker, Steven. 2013 August 6. Science is not your enemy. *New Republic*.  
<http://www.newrepublic.com/article/114127/science-not-enemy-humanities>

Rhoten, Diana, & Powell, Walter W. 2007. The frontiers of intellectual property: Expanded protection versus new models of open science. *Annual Review of Law and Social Science*, 3:345-373.

Teich, Albert H. 2003. *Technology and the future*, 9th ed. Wadsworth Publishing. selected chapters.

Zakaria, Fareed. 1994. Culture is destiny: A conversation with Lee Kuan Yew. *Foreign Affairs* 73(2): 109-126.

## **Politics of Science Policy**

Greenberg, Daniel. 2001. *Science, money, and politics: Political triumph and ethical erosion*. Chicago: University of Chicago Press. Ch.3, 12, 22.

Guston, David H. 2007. *Between politics and science*. New York: Cambridge University Press. intro,ch1-6.

Hilgartner, Stephen. 2000. *Science on stage: Expert advice as public drama*. Stanford: Stanford University Press. Introduction, pp. 3-41.

Kelly, Henry, Oelrich, Ivan, Aftergood, Steven., & Tannenbaum, Benn.H. 2004. Flying blind: The rise, fall, and possible resurrection of science policy advice in the US. *Federation of American Scientists*. Occasional Paper No. 2. [http://fas.org/pubs/\\_docs/flying\\_blind.pdf](http://fas.org/pubs/_docs/flying_blind.pdf)

Piekle, Robert, Jr. 2007. *The honest broker: Making sense of science in policy and politics*. Cambridge University Press.

Sarewitz, Daniel. 1996. *Frontiers of illusion: Science, technology, and the politics of progress*. New Brunswick, NJ: Rutgers University Press. Ch 1, 2, 3, 7, 8, 9.

## **Ideology & Voodoo Science**

Kaminer, Wendy. 2000. *Sleeping with extra-terrestrials: The rise of irrationalism and the perils of piety*. New York: Pantheon.

Lakatos Imre. 1973 June 30. *Science and Pseudoscience*, broadcast on 30 June 1973 as Programme 11 of The Open University Arts Course A303, "Problems of Philosophy"  
<http://www.lse.ac.uk/collections/lakatos/scienceAndPseudoscience.htm>

Park, Robert L. 2001. *Voodoo science: The road from foolishness to fraud*, chapter 5 p.92-110. Oxford University Press.

Shermer, Michael. 2002 [1997]. *Why people believe weird things*. Henry Hold and Company.

Simon, Bart. 2002. *Undead science: Science studies and the afterlife of cold fusion*. Piscataway, NJ: Rutgers University Press.

### **Policy areas mentioned in books above**

Methyl Tertiary Butyl Ether (MTBE)/Clean Air Act; Stem cells

Kelly, Henry, Oelrich, Ivan, Aftergood, Steven., & Tannenbaum, Benn.H. 2004. Flying blind: The rise, fall, and possible resurrection of science policy advice in the US. *Federation of American Scientists*. Occasional Paper No. 2. [http://fas.org/pubs/\\_docs/flying\\_blind.pdf](http://fas.org/pubs/_docs/flying_blind.pdf)

Climate change (limited example)

Piekle, Robert, Jr. 2007. *The honest broker: Making sense of science in policy and politics*. Cambridge University Press.

Muller, Richard A. 2008. *Physics for Future Presidents*. New York: Norton.

Nuclear

Muller, Richard A. 2008. *Physics for Future Presidents*. New York: Norton.

Simon, Bart. 2002. *Undead science: Science studies and the afterlife of cold fusion*. Piscataway, NJ: Rutgers University Press.

Wynne, Brian. 1996. Misunderstood misunderstandings: Social identities and public uptake of science. Cambridge, in Alan Irwin and Brian Wynne (eds.) *Misunderstanding Science?* Cambridge University Press.

Space

Muirhead, Brian , & Simon, William L. 2004. *High velocity leadership: The Mars Pathfinder approach to faster, better, cheaper*. Babbage Press.

Muller, Richard A. 2008. *Physics for Future Presidents*. New York: Norton.

Launius, Roger, & McCurdy, Howard. 2008. Homo sapiens, transhumanism, and the postbiological Universe, in *Robots in Space*, chapter 6. John Hopkins University Press.

## Development

Faberberg, Jan., & Srholec, Martin. 2008. National Innovation Systems, Capabilities, and Economic Development. *Research Policy*. 37:1417-1435.

## Human Genome

Lambright, Henry. 2002. *Managing Big Science: A Case Study of the Human Genome Project* IBM: New ways to manage series. <http://www.businessofgovernment.org/report/managing-big-science-case-study-human-genome-project>

## Terrorism

Muller, Richard A. 2008. *Physics for Future Presidents*. New York: Norton.

## Energy

Bryce, Robert. 2014. *Smaller faster lighter denser cheaper: How innovation keeps proving the catastrophists wrong*. Public Affairs.

Muller, Richard A. 2008. *Physics for Future Presidents*. New York: Norton.

Muller, Richard A. 2013. *Energy for Future Presidents*. New York: Norton.

## Health

Richter, Jurith. 2004. Public-private partnerships for health: A trend with no alternatives? *Development*, 47(2): 43-48.