

Scientific Pluralism in Practice: Readings in the Philosophy and History of Science

SCHEDULE

Week 1 Introduction – What is (Modern) Philosophy of Science?

- Readings: Chang, H. 2012. *Is Water H₂O? Evidence, Realism and Pluralism*. Boston Studies in the Philosophy and History of Science. Springer, Introduction, Chapters 1.1 and 1.3, 4.1 and 5.1.
Ladyman, J., and D. Ross. .2009. *Every thing must go: Metaphysics naturalized*, Oxford University Press, Chapter 1.
Watch: Chang -- <https://www.youtube.com/watch?v=zGUsIf9qYw8>

Week 2 Radical Pluralism

- Readings: Gray, J. 1996. *Isaiah Berlin*, Harper Collins, Chapter 2 (Pluralism).
Feyerabend, P. 2010[1975]. *Against Method*, 4th Edition, Verso, Introduction, Chapter 1 and 4.

Week 3 The Role of Expertise in Liberal Pluralism

- Readings: Gray, J. 1996. *Isaiah Berlin*, Harper Collins, Chapter 2 (Pluralism).
Collins, H. 2014. *Are we all scientific experts now?* Polity.

Week 4 Philosophy, History, and Sociology of Science as Meta-Expertise?

- Readings: Collins, H. 2014. *Are we all scientific experts now?* Polity.
Chang, Hasok. 2012. *Is Water H₂O? Evidence, Realism and Pluralism*. Boston Studies in the Philosophy and History of Science. Springer; Introduction, Chapters 1.1 and 1.3, 4.1 and 5.1

Week 5 Can False Models lead to truer Theories?

- Readings: Wimsatt, W. 2006. Re-engineering philosophy for limited beings: Piecewise Approximations to Reality. Harvard University Press, Chapter 6 (False Models as Means to Truer Theories).
Hacking, I. 1994. Styles of Scientific Thinking or Reasoning: A New Analytical Tool for Historians and Philosophers of the Sciences. *Trends in the Historiography of Science* 151: 31-48.

Week 6 Reasoning Styles in the Debate about the Causes of Peptic Ulcer Disease

- Readings: Hacking, I. 1994. Styles of Scientific Thinking or Reasoning: A New Analytical Tool for Historians and Philosophers of the Sciences. *Trends in the Historiography of Science* 151: 31-48.

Šešelja, D., and C. Straßer. 2014. Heuristic reevaluation of the bacterial hypothesis of peptic ulcer disease in the 1950s. *Acta biotheoretica* 62(4): 429-454.

Week 7 ***Kuhnian Paradigms and the Idea of Columns in the Brain***

Readings: Kuhn, Thomas S. 2012[1962]. *The Structure of Scientific Revolutions*.
Wurtz, RH. 2009. Recounting the impact of Hubel and Wiesel. *The Journal of Physiology* 587(12): 2817-2823.

Weeks 8 & 9 ***Unconceived Hypotheses – How to Identify the Right Kind of “What If”?***

Week 8: Underdetermination, Darwin, and Pangenesis

Readings: Stanford, K. 2006) *Exceeding our Grasp. Science, History, and the Problem of Unconceived Hypotheses*. Oxford University Press, Chapters 2 and 3.

Week 9: Selective Confirmation and Weismann’s Theory of the Germ Plasm

Readings: Stanford, K. 2006) *Exceeding our Grasp. Science, History, and the Problem of Unconceived Hypotheses*. Oxford University Press, Chapters 5 and 7.

Week 10 ***Pluralism Science Education: Teaching (the Plurality of) Failures***

Reading: Firestein, S. 2015. *Failure: Why Science is So Successful*. Oxford University Press, Chapters 6, 8, 10, 14.

Week 11 ***General Discussion: The Advancement of Science***

Reading: Kitcher, P. 2011. *Science in a Democratic Society*. Prometheus Books, Chapters 6-9.