History of Science 720: *Proseminar in Historiography and Methods*

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332 Bradley Memorial Building
Thursday 1–3:30pm

This course provides an introduction to the scholarly field that is the history of science. It gives a brief overview of some of the major themes and issues that occupy the field, and the different approaches scholars have used to address their questions. In the first half of the course, we will read texts that were formative in the development of the history of science (such as Kuhn's widely read book *The Structure of Scientific Revolutions*), as well as texts that are representative of different approaches that are paradigmatic in the field (such as the turn towards studying the practices of science instead of ideas or concepts). The second half of the course is comprised of clusters of readings that represent different subfields or areas of research interest with the history of science, and each of these weeks will be co-led by a guest instructor from the department who works in that area. This section of the course has a dual purpose: to introduce you to faculty members from the department and their research strengths, and to give you a sampling of the variety of topics and issues that are currently animating scholarship in the field. The interests of the students enrolled in the class will direct the final weeks of the course. For week thirteen we'll discuss potential questions or research areas relating to your interests that are not well covered by the assigned readings, and I will develop a reading list tailored towards these collectively defined needs. The last class meeting will be reserved primarily for a discussion of your final paper assignments and the observations and/or issues you are encountering in your writing.

Assignments: In addition to your active participation in weekly class discussions, you are also required to submit a weekly reading response for ten of the twelve weeks with assigned readings (this means you get two opportunities to pass on doing a reading response, which you can take whenever best suits your needs). These reflections should be about five hundred words and can be informal in

nature, touching on issues such as: common themes or arguments in the readings, contrasts between the readings, the purpose or value of the readings and/or approaches, things that you didn't understand in the readings, or questions that you would like to discuss in class. The aim of the readings responses is to get you thinking about what you'd like to talk about in advance of class, and we'll use the reading responses to help set the agenda for each discussion session. Please post your reading responses to the forum on the Canvas website at least twenty-four hours before class to allow time for your classmates and me to read them. Class participation and reading responses count for fifty percent of your final grade.

Your final paper assignment for this class will be a historiographical essay that reflects on a particular historical question, subfield of literature, or methodological approach. You can reflect either on texts and issues that we have discussed in class or on a body of literature in history of science (perhaps relating to your research interests) that we did not cover in class, but keep in mind that this is not intended to be a research paper and extensive source work should not be necessary. As part of the scheduled readings we will read several review essays that can serve as exemplars for writing about trends or themes in the discipline. Your paper should be about fifteen pages in length, and will be due during the exam period after classes end (exact date to be discussed in class). The final essay counts for the other fifty percent of your final grade.

Evaluation: You'll receive feedback on and an interim letter grade for your class participation and reading responses at mid semester. Your cumulative participation/reading responses and final paper will be assigned letter grades at the end of the semester.

Readings: Course books will be available on reserve at College Library, and links to articles that are available through UW–Madison's electronic holdings will be compiled in the electronic course reserves page. Any remaining texts not available through either the physical or electronic reserves will be posted on the Canvas site.

Course Schedule

Sept 8: Course introduction

- "What Is Historiography and Why Is It Important?" n.d. `https://www.reddit.com/r/AskHistorians/comments/3ew9t8/what_is_historiography_and_why_is_it_important/`
- "Historiography." n.d. `http://qcpages.qc.cuny.edu/writing/history/critical/historiography.html`
- Joseph Dumit. 2012. "How I Read." September 27. `http://dumit.net/how-i-read/`

Sept 15: Origins and outlines of the history of science

- Thomas S. Kuhn. 1996. *The structure of scientific revolutions.* 3rd ed. Chicago: University of Chicago Press (including the postscript)
- Lynn Nyhart. Forthcoming. "Historiography of the History of Science"
- Victor L. Hilts. 1984. "History of Science at the University of Wisconsin." *Isis* 75, no. 1 (March): 63–94. `http://www.jstor.org/stable/232359`

Sept 22: Producing knowledge and social order

- Steven Shapin and Simon Schaffer. 1989. *Leviathan and the air-pump: Hobbes, Boyle, and the experimental life.* Princeton, NJ: Princeton University Press
- Steven Shapin and Simon Schaffer. 2011. "Up for Air: Leviathan and the Air-Pump a Generation On." In *Leviathan and the air-pump: Hobbes, Boyle, and the experimental life,* 2nd ed., xi–xlix. Princeton, NJ: Princeton University Press. `http://press.princeton.edu/chapters/i9440.pdf`
- Mi Gyung Kim. 2014. "Archeology, genealogy, and geography of experimental philosophy." *Social Studies of Science* 44 (1): 150–162. `http://resolver.scholarsportal.info/resolve/03063127/v44i0001/150_agagoep.xml`

Sept 29: Great men of science?

- Janet Browne. 1996. *Charles Darwin: A Biography.* Vol. 1 – Voyaging. Princeton, N.J.: Princeton University Press (Introduction, chapters 12–15, 21)
- Crosbie Smith. 1998. *The science of energy: a cultural history of energy physics in Victorian Britain.* Chicago: University of Chicago Press (Chapters 1–4, 14, epilogue)
- Margaret W. Rossiter. 1993. "The Matthew Matilda Effect in Science." *Social Studies of Science* 23 (2): 325–341. `http://www.jstor.org/stable/285482`
- Mary Jo Nye. 2006. "Scientific Biography: History of Science by Another Means?" *Isis* 97 (2): 322–329. doi:`10.1086/504738`

Oct 6: The practice turn

- Bruno Latour and Steve Woolgar. 1986. *Laboratory life: the construction of scientific facts.* Princeton, N.J: Princeton University Press (Chapters 1–4)
- Léna Soler et al. 2014. "Introduction." In *Science After the Practice Turn in the Philosophy, History, and Social Studies of Science,* edited by Léna Soler et al., 1–43. New York: Routledge

Plus any two of:

- Heinz Otto Sibum. 1995. "Reworking the mechanical value of heat: Instruments of precision and gestures of accuracy in early Victorian England." *Studies in History and Philosophy of Science Part A* 26 (1): 73–106. doi:10.1016/0039-3681(94)00036-9
- Hugh Gusterson. 1996. "Nuclear Weapons Testing: Scientific Experiment as Political Ritual." In *Naked science: anthropological inquiry into boundaries, power, and knowledge,* edited by Laura Nader, 131–147. New York: Routledge
- Simon Schaffer. 1989. "Glass Works: Newton's Prisms and the Uses of Experiment." In *The Uses of Experiment: Studies in the Natural Sciences,* edited by David Gooding, Trevor Pinch, and Simon Schaffer, 67–104. Cambridge: Cambridge University Press
- Harry M. Collins. 1974. "The TEA Set: Tacit Knowledge and Scientific Networks." *Science Studies* 4 (2): 165–185. http://www.jstor.org/stable/284473

Oct 13: Material agency and actants

- Bruno Latour. 2005. *Reassembling the Social: An Introduction to Actor-Network-Theory.* Oxford: Oxford University Press ("Introduction" and "Objects too have agency")
- Andrew Pickering. 1995. "The mangle of practice; Machines: Building the bubble chamber." In *The Mangle of Practice,* 1–67. Chicago: University of Chicago Press
- Ian Hacking. 1999. "Madness: biological or constructed?" In *The Social Construction of What?,* 100–124. Cambridge, MA: Harvard University Press
- Michael Callon. 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?,* edited by John Law, 196–223. London: Routledge & Kegan Paul
- Timothy Mitchell. 2002. "Can the mosquito speak?" In *Rule of Experts: Egypt, Techno-Politics, Modernity,* 19–53. Berkeley: University of California Press

Oct 20: Science and macro politics

- Michel Foucault. 1995. *Discipline and punish: the birth of the prison.* 2nd ed. New York: Vintage Books ("The body of the condemned," "Docile bodies," and "Panopticism")
- Sheila Jasanoff. 2006. "Biotechnology and Empire: The Global Power of Seeds and Science." *Osiris* 21 (1): 273–292. doi:10.1086/507145
- Paul Forman. 1973. "Scientific Internationalism and the Weimar Physicists: The Ideology and Its Manipulation in Germany after World War I." *Isis* 64 (2): 151–180. http://www.jstor.org/stable/229595

- Robert K. Merton. 1938. "Science and the Social Order." *Philosophy of Science* 5 (3): 321–337. http://www.jstor.org/stable/184838
- *Merton Thesis.* 2016. In *Wikipedia, the Free Encyclopedia.* Page Version ID: 738222401. September 7. Accessed September 8, 2016. https://en.wikipedia.org/w/index.php?title=Merton_Thesis&oldid=738222401
- Steven Shapin. 1988. "Understanding the Merton Thesis." *Isis* 79 (4): 594–605. http://www.jstor.org/stable/234749

Oct 27: Scientific texts and the culture of print (with Robin Rider

This session will meet in Special Collections, on the ninth floor of Memorial Library.

- Readings to be announced

Nov 3: Session with Richard Keller

- Readings to be announced

Nov 10: Scientists, philosophers, and the history of science (with Lynn Nyhart)

- David L. Hull. 2000. "The Professionalization of Science Studies: Cutting Some Slack." *Biology and Philosophy* 15 (1): 61–91. doi:10.1023/A:1006547510796
- Donald R. Kaplan and Todd J. Cooke. 1996. "The Genius of Wilhelm Hofmeister: The Origin of Causal-Analytical Research in Plant Development." *American Journal of Botany* 83 (12): 1647–1660. doi:10.2307/2445841. JSTOR: 2445841
- Lynn Nyhart and Scott Lidgard. in press. "Alternation of Generations, 1851." In *Biological Individuality: Integrating Scientific, Philosophical, and Historical Perspectives,* edited by Scott Lidgard and Lynn Nyhart. Chicago: University of Chicago Press
- Brian K. Hall. 2012. "Evolutionary Developmental Biology (Evo-Devo): Past, Present, and Future." *Evolution: Education and Outreach* 5 (2): 184–193. doi:10.1007/s12052-012-0418-x
- Alan C. Love and Rudolf A. Raff. 2003. "Knowing Your Ancestors: Themes in the History of Evo-Devo." *Evolution & Development* 5 (4): 327–330. doi:10.1046/j.1525-142X.2003.03040.x

Nov 17: History of science by other means (with Andy Warwick)

- Andrew Warwick and David Kaiser. 2005. "Conclusion: Kuhn, Foucault, and the Power of Pedagogy." In *Pedagogy and the Practice of Science,* edited by David Kaiser, 393–410. Cambridge, MA: MIT Press

- Andrew Warwick. 1998. "Exercising the Student Body: Mathematics and Athleticism in Victorian Cambridge." In *Science Incarnate: Historical Embodiments of Natural Knowledge,* edited by Christopher Lawrence and Steven Shapin, 288–326. Chicago: University of Chicago Press
- Andrew Warwick. 2005. "X-rays as Evidence in German Orthopaedic Surgery, 1895–1900." *Isis* 96 (1): 1–24. doi:10.1086/isis.2005.96.issue-1
- Andrew Warwick (draft), "Killing Fever"

Nov 24: Thanksgiving recess (no class)

Dec 1: Working with data (with Florence Hsia)

- Readings to be announced

Dec 8: Student choice readings

- Readings to be announced

Dec 8: Wrap up and student paper topic discussion

- No readings