History of Science / Medical History 133: *Biology and Society, 1950–today*

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Spring 2017
Van Vleck B130
MW 11:00–11:50, plus discussion section

From medical advancements to environmental crises and global food shortages, biology and the life sciences are implicated in some of the most pressing social issues of our time. This course explores events in the history of biology from the mid-twentieth century to today, and examines how developments in these scientific fields have shaped and are shaped by society. The course is divided into three thematic units. In the first unit, we investigate the origins of the institutions, technologies, and styles of practice that characterize contemporary biology; such as the use of mice as "model organisms" for understanding human diseases. In the second unit, we delve into areas of biology that have raised controversies about regulation, governance, and public participation; such as the introduction of genetically modified plants into the food supply. The final unit examines how we use biological facts and theories as a resource for understanding ourselves. Within the units, each week begins with an examination of an historical event or controversy that provides an entry into a discussion about how biology and society interact. The creation of a cloned sheep named Dolly and the ensuing media coverage and controversy, for example, demonstrates how new reproductive technologies are challenging fundamental categories that we use to describe the life course such as "parent" and "offspring."

The course consists of two lectures and one discussion section per week. You will also read a selection of historical, sociological, and popular articles each week in preparation for class, which will be contextualized and discussed in lecture and section. Evaluation is based on two exams, two short writing assignments, and discussion section participation. This course is aimed at helping students in the sciences, social sciences, or humanities to develop the analytical and writing skills needed to confront complex social issues involving the life sciences. No prior knowledge of biology, history, or social theory is required.

Course Objectives

By the end of the course, you will:

- develop an appreciation for the ways in which the institutions, practices, and ways of thinking associated with contemporary biology are specific to a particular place and time, and have changed over time;
- be able to identify and state the significance of key people and events in the recent history of biology;
- understand key theoretical frameworks for describing interactions between biology and society, and be able to apply these frameworks to new empirical cases
- be able to identify and evaluate the strength of the arguments and evidence used in an academic paper;
- be able to extrapolate complex arguments to new contexts and assess how new information would change the argument.

Course materials

Textbooks There are no textbooks assigned for this course. A course pack containing all of the required readings is available for purchase at the Social Science Copy Center (Social Science 6120). A copy of the course pack will also be at the reserve desk at College Library in Helen C. White Hall. Lecture slides will be available for download from the Canvas website the day before lecture.

Clickers Purchasing an iClicker and/or a subscription to the REEF Polling system is recommended but not required for participating in lectures.

Course components and grading

Assignment	*% of final grade*	*Due date*
Discussion section	15%	Fomative assessment at mid semester
Reading summary assignment	15%	February 8–24, as assigned
Midterm exam	25%	March 15
Critical thinking assignment	20%	April 14
Final exam	25%	May 6
Clicker/REEF participation	+0.5%	Bonus for answering at least 75% of lecture questions

Discussion section Small group sessions are intended both to help you work through the course material and to evaluate your ability to orally present your interpretations of those materials. A rubric outlining expectations for discussion section will be distributed and discussed in the first week of sections, and you will receive written feedback and an interim grade on your participation at mid semester.

Reading summary assignment This assignment focuses on your ability to identify the most important elements of a complex argument and evaluate its strength. You will have the opportunity to choose the course reading you will work with for this assignment (a list of eligible course readings will be distributed in section), and the assignment will be due on the day that the reading you selected is due in section. A detailed description of the assignment and a grading rubric will be distributed and discussed in section.

Critical thinking assignment This assignment focuses on your ability extend an academic argument to a new context, and assess how new evidence would impact that argument. Starting with one of the course readings on biology and the public, you will demonstrate your understanding of the author's argument and do research to find new evidence that would challenge or change the argument. You will have an opportunity to discuss the outside source you plan to use in section prior to completing the written assignment. A detailed description of the assignment and a grading rubric will be distributed and discussed in section.

Midterm and final exams Exams contain a combination of multiple choice questions, identification questions (where you must identify and state the significance of a person, event, or concept from the course), short answer questions, and essay questions. A study aid with a list of example identification questions will be distributed in discussion section prior to the midterm and final exams.

Course policies

Email Due to the size of the course, we are unable to answer questions via email. For short questions (e. g. assignment due dates), please post on the questions forum on the Canvas website, and one of the TAs or I will reply there. For longer questions (e. g. feedback on a draft of an assignment), or if you have personal concerns you would like to discuss, please come see me or your TA during office hours. If you are not able to meet during office hours, you can email us to arrange an alternative meeting time.

Discussion section absences Attendance will be taken weekly at discussion sections and counts towards your discussion section grade. For absences due to illness, family emergencies, scheduled conflicts, or other legitimate reasons, you can make up the missed participation grades by handing in a 250 word informal reading response instead of attending class. You must contact your TA in advance of the missed class (unless there are exceptional circumstances) to clear your absence with him/her and agree on a due date for your reading response.

Letter grade conversion and late assignments All assignments will receive a numeric score (e. g. 29/30), and your total numeric score will be converted into a final letter grade using the conversion table below. Scores falling below these cutoffs will not be rounded up. Late assignments will be penalized by 3% of the total assignment points per day, unless you have made prior arrangements with your TA or me.

A	AB	B	BC	C	D	F
93.0–100%	88.0–92.9%	83.0–87.9%	78.0–82.9%	70.0–77.9%	60.0–69.9%	0–59.9%

Students with disabilities I am available to discuss academic accommodations for students with disabilities. Please present your McBurney visa to your TA and/or me within the first three weeks of the semester so that there is enough time for appropriate arrangements to be made—this is especially important for students requiring exam accommodations, which can take several weeks to arrange.

Academic integrity Everyone is expected to adhere to the University of Wisconsin—Madison's core values regarding academic integrity. Plagiarism or other academic misconduct may result in a zero on the assignment or exam, a lower grade in the course, or failure in the course. See the Dean of Students Office website for more information about the academic misconduct process.

https://students.wisc.edu/student-conduct/academic-integrity/

Course schedule

Week 1, January 18: Course Introduction

No assigned readings or sections this week

Unit 1: The institutions and social practices of biology

Week 2, January 23 and 25: Telling the history of biology

- Héloïse D. Dufour and Sean B. Carroll. 2013. "History: Great myths die hard." *Nature* 502 (7469): 32–33
- Kary Mullis. 2000. "The invention of PCR." in *Dancing naked in the mind field,* 3–14. New York: Vintage Books

Week 3, January 30 and February 1: From big physics to big biology

- David Kaiser. 2015. "History: From blackboards to bombs." *Nature* 523 (7562): 523–525
- Park Doing. 2009. "Birth of a hybrid laboratory." In *Velvet Revolution at the synchrotron biology, physics, and change in science,* 1–21. Inside technology. Cambridge, MA: MIT Press

Week 4, February 6 and 8: **Reshaping the clinic**

- M. Susan Lindee. 2000. "Genetic disease since 1945." *Nature Reviews Genetics* 1 (3): 236–241
- Norman Fost. 1992. "Ethical Implications of Screening Asymptomatic Individuals." *FASEB Journal* 6 (10): 2813–2817

Week 5, February 13 and 15: **University–industry relations**

- Daniel S. Greenberg. 2007. "Generations apart," 233–242. Chicago: University of Chicago Press
- Sergio Sismondo and Mathieu Doucet. 2010. "Publication Ethics and the Ghost Management of Medical Publication." *Bioethics* 24 (6): 273–283

Week 6, February 20 and 22: **Model organisms**

- Daniel Engber. 2011. "The Trouble with Black-6." *Slate* (November 17)
- Susan E. Lederer. 1992. "Political Animals: The Shaping of Biomedical Research Literature in Twentieth-Century America." *Isis* 83 (1): 61–79

Unit 2: Governance and participation in biology

Week 7, February 27 and March 1: **The popularization of genetics**

- Dorothy Nelkin and Susan Lindee. 2000. "The DNA mystique: the gene as a cultural icon." In *Perspectives in Medical Sociology,* 3rd ed., edited by Phil Brown, 406–424. Prospect Heights, IL: Waveland

Week 8, March 6 and 8: **Who gets to participate in biology?**

- Harry M. Collins and Trevor J. Pinch. 1998. "The science of the lambs: Chernobyl and the Cumbrian sheepfarmers." In *The Golem at Large: What You Should Know about Technology,* 113–125. Cambridge: Cambridge University Press
- Daniel Sarewitz. 2015. "CRISPR: Science can't solve it." *Nature* 522 (7557): 413–414

Week 9, March 13: **Regulation of biotechnology – Asilomar (1975)**

No assigned readings or sections this week

March 15: **In-class midterm exam**

March 18–26: **Spring break**

Week 10, March 27 and 29: **Toxic landscapes and environmental politics**

- Gregg Mitman. 2007. "Choking cities." In *Breathing Space: How Allergies Shape Our Lives and Landscapes,* 130–166. New Haven, CT: Yale University Press

Unit 3: Biology and the Self

Week 11, April 3 and 5: **Seeing humanity through evolution**

- Richard C. Lewontin. 1991. "All in the Genes?" In *Biology as Ideology: The Doctrine of DNA,* 19–37. New York: HarperPerennial

Week 12, April 10 and 12: **Neuroscience and the authentic self**

- Ilina Singh. 2005. "Will the "real boy" please behave: dosing dilemmas for parents of boys with ADHD." *American Journal of Bioethics* 5 (3): 34–47

April 14: **Critical thinking assignment due**

Week 13, April 17 and 19: **Race and reproduction**

- Charis Thompson. 2001. "Strategic naturalizing: kinship in an infertility clinic." In *Relative Values: Reconfiguring Kinship Studies,* edited by Sarah Franklin and Susan McKinnon, 175–202. Durham, NC: Duke University Press

Week 14, April 24 and 26: **Globalizing biology**

- Margaret Lock and Christina Honde. 1990. "Reaching consensus about death: heart transplants and cultural identity in Japan." In *Social Science Perspectives on Medical Ethics,* edited by George Weisz, 99–119. Culture, Illness, and Healing 16. Dordrecht, Netherlands: Kluwer Academic Publishers

Week 15, May 1 and 3: **Conclusion**

No assigned readings this week

May 6, 10:05am–12:05pm: **Final exam, room to be announced**