

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

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Office hours: W 12:00–2:00 pm, or by appointment

Spring 2016  
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 this scientific field 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 asks how biological facts and theories have been and continue to be used as a source 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 content is delivered through two lectures and one discussion section per week. Students 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 will be based on the quality of students’ participation in section, two short writing assignments, and midterm and final exams. This course will help 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, students 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;
- 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; and
- 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), and 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 Learn@UW website the day before lecture.

**Clickers** A subscription to REEF Polling is recommended but not required for participating in lectures (this online polling system requires a laptop or smartphone). If you have an i>clicker, you can also use your remote to participate without paying for a subscription by linking it to a REEF account. To create an account, visit <https://reef-education.com/>

## Assignments and grading

<i>Assignment</i>	<i>% of final grade</i>	<i>Due date</i>
Discussion section	15%	formative assessment at mid semester
Reading summary assignment	15%	February 10–26, as assigned
Midterm exam	25%	March 16
Critical thinking assignment	20%	formative assessment April 13-15; assignment due April 22, 5:00 pm
Final exam	25%	May 13
Clicker participation	+0.5%	Bonus for answering 75% or more 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 elements of a complex academic argument and evaluate its strength. You will choose the reading you would like to work with for this assignment (a list of eligible course readings and a schedule 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 will contain a combination of multiple choice questions, identification questions (where students 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 course questions forum on the Learn@UW website, and one of the TAs or I will reply there. For longer questions (e.g. feedback on a draft 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** We will take attendance weekly at discussion sections, and it 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 (except in 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), which will also be displayed as a percentage score on the Learn@UW website. 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** All students are 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 (<http://students.wisc.edu/doso/acadintegrity.html>).

## Course schedule

### January 20: Course Introduction

No assigned readings or sections for this week

### January 25 and 27: Historical narratives and origin stories about contemporary biology

- Héloïse D. Dufour and Sean B. Carroll. 2013. “History: Great myths die hard.” *Nature* 502 (7469): 32–33. doi:10.1038/502032a
- Kary Mullis. 2000. *Dancing naked in the mind field*. Vintage Books, January, pp. 3–14

## Unit 1: The institutions and social practices of biology

### February 2 and 4: From big physics to big biology (World War II)

- David Kaiser. 2015. “History: From blackboards to bombs.” *Nature* 523 (7562): 523–525. doi:10.1038/523523a
- Distillations Staff. 2013. *Cold War Chemistry*. Distillations Podcast 167. February 19. <http://www.chemheritage.org/discover/media/distillations/167-cold-war-chemistry.aspx> (Listen to the podcast)

**February 8 and 10: Reshaping the clinic – BRCA genes (1994, 1995)**

- M. Susan Lindee. 2000. “Genetic disease since 1945.” *Nature Reviews Genetics* 1 (3): 236–241. doi:10.1038/35042097
- Robert C. Green and Nita A. Farahany. 2014. “Regulation: The FDA is overcautious on consumer genomics.” *Nature* 505 (January 16): 286–287. doi:10.1038/505286a
- George Doe [pseud.]. 2014. “With genetic testing, I gave my parents the gift of divorce.” *Vox* (September 9)

**February 15 and 17: University–industry relations – Bayh Dole Act (1980)**

- Steven Shapin. 2003. “Ivory Trade.” *London Review of Books* 25, no. 17 (September): 15–19
- Daniel S. Greenberg. 2007. *Science for Sale: The Perils, Rewards, and Delusions of Campus Capitalism*. University of Chicago Press, pp. 233–42

**February 22 and 24: Model organisms – *C elegans* (1963)**

- 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. doi:10.1086/356025

**Unit 2: Governance and participation in biology**

**February 29 and March 2: The popularization of genetics – The Human Genome Project (1990)**

- 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

**March 7 and 9: Who gets to participate in biology? – Colony collapse disorder (2006)**

- 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. doi:10.1038/522413a

**March 14: Regulation of biotechnology – Asilomar (1975)**

No assigned readings

**March 16: In-class midterm exam**

No sections this week.

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**March 19–27: March break**

**March 28 and 20: Toxic landscapes and environmental politics – *Silent Spring* (1962)**

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

**Unit 3: Biology and the self**

**April 4 and 6: Seeing humanity through biology – *Sociobiology* (1975)**

- Robert M. Sapolsky. 1998. “The trouble with testosterone.” In *The Trouble with Testosterone: And Other Essays on the Biology of the Human Predicament*, 147–159
- Anne Fausto-Sterling. 2014. “Letting go of normal.” *Boston Review* (April 7)

**April 11 and 13: Neuroscience and the Decade of the Brain (1990)**

- Ilima Singh. 2005. “Will the “real boy” please behave: dosing dilemmas for parents of boys with ADHD.” *American Journal of Bioethics* 5 (3): 34–47. doi:10.1080/15265160590945129

**April 18 and 20: Race and Reproduction – *Dolly the cloned sheep* (1997)**

- 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

**April 22: Critical thinking assignment due**

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**April 25 and 27: 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. doi:10.1007/978-94-009-1930-3\_6

**May 2 and 4: Conclusion**

No assigned readings

**May 13, 2:45–4:45 pm: Final exam**

Room to be announced

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