

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

Professor Nicole Nelson

Mosse Humanities, Room 4105

Office hours: Thursday 1:45–3:45 PM, or by appointment

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Spring 2018

Grainger 1100

MW 11:00–11:50 AM, plus discussion section

Teaching Assistants

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From medical advancements to environmental crises, 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 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 discussed in section. Evaluation is based on exams and quizzes, 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 review on Canvas and Top Hat after lecture.

Lecture participation A Top Hat subscription is recommended but not required for participating in lectures.

Course components and grading

<i>Assignment</i>	<i>% of final grade</i>	<i>Due date</i>
Discussion section participation	15%	Formative assessment at mid semester
Quizzes	15%	Feb 14, March 21, April 18
Reading summary assignment	10%	February 14–23, as assigned
Midterm exam	20%	March 7
Critical thinking assignment	20%	April 13
Final exam	20%	May 6
Lecture participation	Rounding insurance	For students who participate in at least 75% of lectures

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. Grades falling just below these cutoffs will be rounded up by up to 0.5% only if you have participated in at least 75% of the lectures via Top Hat. E. g.

- if you have participated in 75% of lectures via TopHat and your assignments add up to 92.50%, your final grade will be an A;
- if you have participated in 74% of lectures via TopHat and your assignments add up to 92.99%, your final grade will be an AB;
- if you have participated in 75% of lectures via TopHat and your assignments add up to 92.49%, your final grade will be an AB.

A	AB	B	BC	C	D	F
93.0–100%	88.0–92.99%	83.0–87.99%	78.0–82.99%	70.0–77.99%	60.0–69.99%	0–59.99%

Discussion section Sections 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 posted on Canvas, and you will receive an interim grade on your participation at mid semester.

Quizzes These multiple-choice quizzes are intended to help you keep up with the lecture and reading material throughout the semester. You will have an opportunity to suggest questions to be included in these quizzes. Quizzes will be administered through Canvas, and you will have 48 hours after the quiz becomes available to take the quiz.

Reading summary assignment This assignment focuses on your ability to identify the most important elements of a complex argument. You will have the opportunity to choose the 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 posted on Canvas.

Critical thinking assignment This assignment focuses on your ability extend or revise an argument using new evidence. 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 a source 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 posted on Canvas.

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 guide with a sample ID answer and a list of terms to help you focus your study efforts will be posted on Canvas 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 we will reply there within 24 hours. For longer questions (e.g. advice on how to approach 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 You are allowed one freebie (no questions asked) absence that you can take at any time during the semester; after that absences will count against your section grade. For absences due to illness, family emergencies, religious observance, or other legitimate reasons, you can make up the missed participation grades by completing a 250 word informal reading response instead of attending section. You must contact your TA in advance of the missed section (unless there are exceptional circumstances) to clear your absence with them and agree on a due date for your reading response.

Workload This course meets for three 50 minute sessions per week, and we expect that you will spend an additional 2 hours working outside of class for each class period. In other words, plan to spend an average of 6 hours per week reading, writing, preparing for discussions, or studying for quizzes and exams.

Grading errors If there are errors in calculating your grade for an assignment or you would like additional clarification on how your work was graded, please see your TA. If you would like to request a regrade of your assignment, please contact me. I will regrade the entire assignment, and the score I assign will become your new grade. All regrade requests must be submitted within two weeks of day that the assignment grades are posted.

Late assignments If you are facing circumstances that are making it difficult for you to meet assignment deadlines (including personal circumstances such as uncertain housing, lack of food, health issues, family crises), I am happy to discuss deadline extensions or other accommodations (you can also contact the Dean of Students Office for assistance with these issues <https://doso.students.wisc.edu/student-assistance/>). Please come see me well in advance of the assignment deadline whenever possible. If you do not make prior arrangements with me or your TA, late assignments will lose 3% of the total assignment points per day late.

Students with disabilities I am happy 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 UW 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 24: Course Introduction

No assigned readings or sections this week

Unit 1: Institutions and social practices

Week 2, January 29 and 31: Telling the history of biology

- Heloise Dufour and Sean Carroll, "Great myths die hard," *Nature* 502.7469 (2013), pp. 32–33.

Week 3, February 5 and 7: From big physics to big biology

- David Kaiser, "From blackboards to bombs," *Nature* 523.7562 (2015): pp. 523–525.
- Park Doing, "Birth of a hybrid laboratory," in *Velvet Revolution at the Synchrotron*, MIT Press, 2009, pp. 1-21.

Week 4, February 12 and 14: Model organisms

- Susan Lederer, "Political animals: the shaping of biomedical research literature in twentieth century America," *Isis* 83 (1992), pp. 61-79.
- Daniel Engber, "The trouble with black six," *Slate*, 17 November 2011.

Week 5, February 19 and 21: University–industry relations

- Daniel Greenberg, “Generations apart,” in *Science for Sale*, University of Chicago Press, 2007, pp. 233-242.
- Sergio Sismondo and Mathieu Doucet, “Publication ethics and the ghost management of medical publication,” *Bioethics* 24.6 (2010), pp. 273-283.

Unit 2: Governance and participation

Week 6, February 26 and 28: The ethics of genetics

- Dorothy Nelkin and M. Susan Lindee. “The DNA mystique: the gene as a cultural icon,” in *Perspectives in Medical Sociology*, ed. Phil Brown, Waveland Press, 2000, 406–424.

Week 7, March 5 and 7: Regulating biotechnology

No assigned readings or sections this week

Week 8, March 12 and 14: Public understanding and lay expertise

- Harry Collins and Trevor Pinch, “The science of the lambs: Chernobyl and the Cumbrian sheepfarmers,” in *The Golem at Large: What You Should Know About Technology*, Cambridge University Press, 1998, pp.113–125.

Week 9, March 19 and 21: Citizen science and environmental politics

- Gregg Mitman, “Choking cities,” in *Breathing Space: How Allergies Shape Our Lives and Landscapes*, Yale University Press, 2007, pp. 130–166.

March 24–April 1: Spring recess

Unit 3: Biology and the Self

Week 10, April 2 and 4: Seeing humanity through biology

- Jon Beckwith and Franklin Huang, “Should we make a fuss? A case for social responsibility in science.” *Nature Biotechnology* 23.12(2005): 1479–1480.

Week 11, April 9 and 11: Race and reproduction

- Charis Thompson, “Strategic naturalization: kinship in an infertility clinic,” in *Relative Values: Reconfiguring Kinship Studies*, eds. Sarah Franklin and Susan McKinnon, Duke University Press, 2001, pp. 175–202.

Week 12, April 16 and 18: Neuroscience and the authentic self

- Ilina Singh, “Will the ‘real boy’ please behave: dosing dilemmas for parents of boys with ADHD,” *American Journal of Bioethics* 5.3 (2005), pp. 34–47.

Week 13, April 23 and 25: Globalizing biology

- Margaret Lock and Christina Honde, “Reaching consensus about death: heart transplants and cultural identity in Japan,” *Social Science Perspectives on Medical Ethics* 16 (1990), pp. 99–119.

Week 14, April 30 and May 2: Conclusion

No assigned readings or sections this week. Watch Canvas announcements for exam review sessions.