

Science and Technology Studies 201
Community and Environmental Sociology 245
Sociology 245
Where Science Meets Society/ Technology and Society

Spring 2012

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Course Description

This course explores the relationship between science, technology, and society. It is premised on the idea that science and technology affect our social, cultural, economic, and political lives, and, equally, scientific research and technology development are shaped by their social, cultural, economic, and political contexts. We will approach the ways in which science and technology “meet society” through a series of case studies that range from refrigerators to biofuels.

The course has three goals:

1. Challenge students to reflect on their own assumptions about the relationships among knowledge, science, technology, society, and politics.
2. Engage students in analyses of major contemporary controversies, enabling each student to acquire in-depth knowledge of one issue of her/his choosing.
3. Improve students’ skills in writing and public speaking.

Requirements and Evaluation

1. **Class participation and attendance** (10%). Most of the in-class learning that goes on will be through group discussion. You must show up prepared for class, engage in discussion, ask questions, dare to be wrong, listen to your fellow students, and share your ideas respectfully. The time each week in discussion represents the only meaningful difference between taking the course and simply using the syllabus as a private reading list. Preparation for class (reading, thinking, and writing) is essential to each participant’s intellectual development, as well as to the experience of the group.

Since this is a discussion-oriented class, you are expected to contribute to the class discussions. Lack of class participation could hurt your final grade. If you are a passive learner and never or almost never raise your hand in class to ask or answer questions or contribute thoughtful comments, your participation grade in this course will not be higher than BC. If you have hard time answering questions in class on the ad hoc basis, come to class with well thought out questions about the material. Although frequent comments are appreciated, **please remember that it is also the quality of your participation and not only the quantity that matters.**

2. **Attendance** is imperative. You are entitled to four absences throughout the semester. Each absence beyond the limit of four will result in lowering your course grade by one half grade: i.e., 5 absences turns an A into an AB; 6 absences turns an A into a B. Since I do not distinguish between "excused" and "unexcused" absences, I suggest you keep your four absences on hold for illness or other unanticipated events that might interfere with your attendance.

3. Assignments

- a. Unless otherwise indicated all written assignments should be send to me as email attachments: dlkleinman@wisc.edu. Unless otherwise indicated, assignments are due before class on the day they are due.
- b. **Written Assignment Formatting:** All written assignments should be formatted with 1-inch margins, 12pt font (Times New Roman, if possible), and double-spaced. Citations for readings from the syllabus should simply indicate author, date, and page number if relevant [e.g., (Collins 1995: 102)]. Citations for other readings should follow the same format within the text and also appear in a reference section at the end of the paper.
- c. **What is technology? What is science?** (5%) Write two paragraphs in which you answer one of these questions. Following these paragraphs, provide a list of factors that you believe shape the development of technology or developments in science. For each factor on your list, you should write a sentence or two describing the factor's role in the development of technology or science. Due in class (hard copy) on January 25th. This assignment will be graded as: Excellent, Acceptable, or Unacceptable.
- d. **Perspectives on Colony Collapse Disorder** (10%): Work in science, journalism, and film offer perspectives. It is impossible to provide an entirely neutral representation. In representing a phenomena some things are emphasized, others are not; some things are included, some are not. In the case of Colony Collapse Disorder, it would be impossible for a single film or news story to cover all of the possibly relevant issues or views of stakeholders and in representing different possible issues and positions films and news coverage will inevitably give some more credibility than others. Indeed, in film the angle of a shot, the clarity, the way one shot is contrasted with another are among the many interpretive moves at a filmmaker's disposal. In this essay, explore the ways in which CCD is represented differently in the two films we watched and in one news story you find on your own. The latter can be from a recognized news source (e.g. *The New York Times*) or a blog or some other source. Your essay should be approximately 750 words. Your introductory paragraph should provide a clear statement of the punch line of your argument about the different sources and the remainder of the essay should involve a systematic comparison of the two films and your third source. See below for the criteria I use to assess written work. You should come to class prepared to discuss the question of perspective on Colony Collapse Disorder and, in particular, how your third source differs from or is similar to the two films. Due: February 29. This essay will be graded using standard UW letter grades.

- e. **Critical Review of *The Immortal Life of Henrietta Lacks*** (10%): Write a 750 word assessment of either the first or second half of this book, focusing on how successful the approach Rebecca Skloot takes is in conveying the ethical issues raised by Henrietta Lacks' life and experience. Please use specific examples from the text. Due: March 5, if you are writing about the first half of the book and March 7, if you are writing about the second half. I will assess this work in terms of the criteria for written work I outline below. This essay will be graded using standard UW letter grades.
- f. **Critical Review of *Intuition*** (10%): Write a 750 word essay in which you consider the value of using fiction to explore issues raised in the world of science. Your source material for this assignment is Allegra Goodman's *Intuition*. You should use specific examples from the text to support your points. Due March 26. I will assess this work in terms of the criteria for written work I outline below. This essay will be graded using standard UW letter grades.
- g. **Summary of Panel Discussion on "The Future of Nuclear Power"** (5%) On April 12 at 7 p.m. the Holtz Center will sponsor a panel discussion on the future of nuclear power. You are expected to attend this panel and to write a 2 page double spaced summary of the perspectives presented by each of the panelists. Your summary should include the names of each panelist and the central points each made. If you are unable to attend the panel, you must tell me in advance, and I will give you an alternative assignment. Due: April 14. This assignment will be graded as: Excellent, Acceptable, or Unacceptable.
- h. **Three reading reactions** (5% each). One of these papers should be about a reading required between January 30 and February 8, your second paper should be about a reading required between February 13 and March 14, and your third should be about a reading required on April 9. These brief papers should illustrate your understanding and active engagement with the reading under consideration. Reading reactions must be emailed to me (dlkleinman@wisc.edu) as an attachment by 5 p.m. the day before class meets to discuss the reading to which the reaction refers. The title of your document should have the following format YourNameTheAuthor'sName.doc.

Your reaction papers should be approximately 400-500 words and include four sections (clearly labeled):

- a. *Argument*: briefly describe the central argument made in the reading.
- b. *Evidence*: describe and evaluate the kind of evidence used by the author(s) to support the argument.
- c. *Connection*: connect this reading to other readings or ideas from class.
- d. *Evaluation*: a paragraph or more that expresses your opinion about the reading. This evaluation must be substantive. That is, you cannot, for example, simply indicate you like the writing style, the topic or the position taken by the author. You must speak to what you find compelling or inadequate in the reading.

These essays will be graded using standard UW letter grades.

No late submissions of assignments will not be accepted.

- i. **Group presentation and facilitation (25%).** The last three weeks of the course will involve groups of students presenting their research on topics of their choice and taking responsibility for facilitating class discussion. In Week 2, each student will sign up for a topic. In Week 3, students will meet in groups (assigned by topic) to discuss strategies for research and presentation. During Weeks 14-16, each group will be responsible for one class period. The following expectations apply:
 - i. **Opening activity (5-10 min):** Design a brief and engaging activity for the class as an introduction to your topic. Possibilities include: distributing a quiz (ungraded) on any reading(s) you assign, showing a video clip, pairing students for a quick discussion or mini-interview, or asking small groups to draw conceptual maps that relate to the topic.
 - ii. **Group presentation (25-35 min):** Provide an overview of the topic that goes well beyond the reading(s) included in the syllabus. Include information on the history of the controversy, policy successes and failures, economic and political implications, and social and ethical considerations. Connect your analysis to ideas from our prior readings and class discussions. Handouts, visuals, and other creative ideas are welcome.
 - iii. **Facilitated discussion (25-35 min):** This could include breaking up into smaller groups, generating a list of questions to pose to the class as a whole, or answering questions sparked by the group presentation.
 - iv. **Class feedback (10 min):** At the end of the hour, the class will have an opportunity to offer specific, respectful, and constructive feedback to the presenters/facilitators. I will hand out an evaluation document. I will collate anonymous student responses and provide them to presenters.
 - v. Each member of the group must have some responsibility for speaking and/or facilitating discussion.
 - vi. The group must present me with a presentation outline and plan for discussion at least one week in advance. Either email correspondence or a face-to-face meeting is fine.

- j. **Individual Write-Up of Group Presentation (10%):** You should write a 750 word paper which is divided in three titled sections. The first should address your group presentation topic and discuss the central things you learned from your research (approximately 300 words). The second should discuss the different sources you used in preparing for your presentation and should include an assessment of the virtues and drawbacks of your different sources (approximately 300 words). The final section should discuss the division of labor your group used in undertaking the project and what worked and what did not. I will assess the first two sections of the assignment using standard UW letter grades. I will not grade the final section of this paper. Due: May 11.

4. **Improving Your Writing.** Writing is one of the most important skills with which you will leave the University. You should take your writing seriously and work hard to improve it. The University has a Writing Center where trained graduate students and professionals will work with you on your papers and help you to make them better. I urge you to take advantage of this resource. The Writing Center is at 6171 Helen C. White (263-9305). You are advised to make an appointment in advance of your desire to meet with a member of the Writing Center. This is especially important at the end of the semester.
5. **Academic Honesty.** You are responsible for understanding the University's standards for academic honesty. These are described on the University's website at <http://students.wisc.edu/saja/misconduct/UWS14.html>.
6. **Grading.** Sometimes the end of the semester comes and students indicate to me that they are not clear about how each course requirement figures into their final grade and/ or how I grade individual assignments. I believe that the description above is exceedingly clear. Indeed, drawing on what I say above, you should be able to determine your grade at any point during the semester. If there is something you are unsure about, it is your responsibility to talk to me. I am always available.
7. **Grading Criteria for Written Work** (borrowed and adapted from the syllabi of Professor Aili Mari Tripp):
 - a. *Well defined statement of problem.* Does the paper start out with a clear question or a clear statement of the problem to be addressed?
 - b. *Originality of Ideas.* As appropriate, do your own views and voice come through clearly.
 - c. *Serious Engagement of Alternative Arguments.* As appropriate, do you seriously consider arguments other than those you make?
 - d. *Use of Evidence.* Are you clear about what the evidence is in the case you consider? Are you clear about the breadth of applicability of the evidence you cite? In other words, do you understand the extent to which it is appropriate to generalize from the evidence you draw on? Some evidence is better than other evidence. Do you provide an assessment of evidence quality, as appropriate?
 - e. *Clarity of Presentation.* Are your ideas clearly expressed? Is your paper focused or does it wander? Can a reader easily identify your main points? Are the ideas presented elaborated sufficiently? Are there sign-posts to guide the reader? Are terms defined?
 - f. *Grammar, Spelling, Citations, Format.* Have you footnoted or cited ideas and facts that are not your own? Of course, all quoted material should appear in quotation marks. All pages should be numbered. Your paper should have a title, and your name should appear on the paper. You should have margins of one inch all the way around. Your paper should be double spaced, and your paper should be stapled in the upper left-hand corner. There should be few spelling and/ or grammatical errors, and there should be clear transitions between sentences and

paragraphs. Reaction papers should be submitted electronically. I would like to receive paper copies of all other assignments.

- g. *Organization*. Is the paper organized effectively? Is the sequence of points made logical and clear? Does each paragraph have a central idea that a reader can easily identify.

- 8. Accommodations.** If you have a disability that could affect your participation and/or performance in this course, please contact me as soon as possible in order to discuss appropriate and helpful accommodations.

Required Reading

The books from which we will read substantial parts are available for purchase at Rainbow Bookstore Cooperative (426 W. Gilman, 257-6050):

- Allegra Goodman. 2007. *Intuition*. New York: Dial Press.
- Rebecca Skloot. 2010. *The Immortal Life of Henrietta Lacks*. New York: Crown Publishers.

In addition, I will try to have these books and others which you might want to read are on reserve at Helen C. White.

Shorter readings will be available for purchase at the Social Sciences Copy Center on the 6th floor of the (Sewell) Social Sciences Building (6120), 1180 Observatory Dr., 262-5396.

Schedule

Beginnings

Jan 23: Introduction to the Course

- Introductions by instructor and students.
- Review of syllabus and assignments

Jan 25: What is Science? What is Technology?

- **Assignment:** “What is technology?” or “What is science?” due

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Jan 30: A Politics to Technology?

- Winner, Langdon (1986). “Do Artifacts Have Politics?” in *The Whale and the Reactor: A Search for Limits in an Age of High Technology* (Chicago, University of Chicago Press): 19-39.
- Cowan, Ruth Schwartz (1985). “The Industrial Revolution in the Home” and “How the Refrigerator Got Its Hum,” in *The Social Shaping of Technology: How the Refrigerator Got*

Its Hum. Edited by D. MacKenzie and J. Wajcman (Philadelphia, PA: Open University Press): 181-218.

Feb 1: A Politics to Science?

- Kinchy, Abby J. and Daniel Lee Kleinman (2005). “Democratizing Science, Debating Values: New Approaches to ‘Politicized’ Science under the Bush Administration.” *Dissent* Summer: 54-62.

Feb 6: Facts, Values and Ethics

- Pfatteicher, Sarah K. A. 2010. Introduction and Chapters 1 in *Lessons amid the Rubble*. Baltimore: Johns Hopkins University Press.

Engineering Ethics, Risk, and Accidents

Feb 8: Engineering and Risk

- Pfatteicher, Sarah K. A. 2010. Chapter 2 in *Lessons amid the Rubble*. Baltimore, Johns Hopkins University Press.

Feb 13: Normal Accidents

- Charles Perrow. 1981. “Normal Accident at Three Mile Island,” *Society* July/ August: 17-26.

Feb 15: Organizational Culture and Accidents

- Diane Vaughan. 2008. “On Slippery Slopes, Repeating Negative Patterns, and Learning from Mistake: NASA’s Space Shuttle Disasters.” Pages 262-277 in Daniel Lee Kleinman, et al (eds.), *Controversies in Science and Technology: From Climate to Chromosomes*, volume 2. New Rochelle, NY: Mary Ann Liebert, Inc. Publishers.

Feb 20: Epistemic Accidents

- John Downer. 2011. “‘737-Cabriolet’: The Limits of Knowledge and the Sociology of Inevitable Failure,” *American Journal of Sociology* 117:3: 725-762.

Colony Collapse Disorder

Feb 22: Documentary Exploration--1

- “Silence of the Bees.” Producer Doug Schultz.

Feb 27: Documentary Exploration--2

- “Vanishing of the Bees” Directed and Produced by George Langworthy and Maryam Henein

Feb 29: News Coverage

- **Assignment:** Perspectives on Colony Collapse Disorder Essay Due.

Race, Ethics and the Politics of Medicine

Mar 5

- Skloot. *The Immortal Life of Henrietta Lacks*. Pages 1-176.
- **Assignment:** Critical Assessment of the Skloot book.

Mar 7

- Skloot. Pages 179-328
- **Assignment:** Critical Assessment of the Skloot book.

Gender in Scientific Careers and Scientific Theories

Mar 12: Women in Engineering

- Judith S. McIlwee and J. Gregg Robinson. 1989. "Women in Engineering: A Promise Unfulfilled," *Social Problems* 36:5.

Mar 14: The Social Construction of Gender

- Katelyn Allen. 2005. "It's a Boy! Gender Expectations Intrude on the Study of Sex Determination." Pages 464-480 in Daniel Lee Kleinman, et al. (eds.) *Controversies in Science and Technology*, volume 2. New Rochelle, NY: Mary Ann Liebert, Inc. Publishers.
- Alice Dreger. "Sex Beyond Karyotype." Pages 481-492 in Daniel Lee Kleinman, et al. (eds.) *Controversies in Science and Technology*, volume 2. New Rochelle, NY: Mary Ann Liebert, Inc. Publishers.

No Class: March 19

Science and Fiction

Mar 21: Laboratory Life and Intuition--1

- Allegra Goodman. *Intuition*. Pages 3-228

Mar 26: Laboratory Life and Intuition--2

- Allegra Goodman. *Intuition*. Pages 228-385.
- **Assignment:** Critical Assessment of *Intuition*

The Politics of Energy Futures

Mar 28: Fracing

- Viewing of "Gasland." Producer Josh Fox.

- “The Truth about ‘Gasland’.” <http://www.anga.us/TruthAboutGasland>

Spring Break, March 31-April 8

Apr 9: Biofuels

- Jason A. Delborne. 2010. “Biofuels: Streams and Themes.” Pages 175-190 in Daniel Lee Kleinman, et al (eds.), *Controversies in Science and Technology: From Evolution to Energy*, Volume 3. New Rochelle, NY: Mary Ann Liebert, Inc. Publishers.
- Renata Marson Teixeira de Andrade and Andrew Miccolis. 2010. “The Expansion of Sugarcane Ethanol in Brazil and Controversies Surrounding Human Rights.” Pages 214-228 in Daniel Lee Kleinman, et al (eds.), *Controversies in Science and Technology: From Evolution to Energy*, Volume 3. New Rochelle, NY: Mary Ann Liebert, Inc. Publishers.

Apr 11: Nuclear Power

- Guest speaker: Professor Paul Wilson. Wilson is on the faculty in the Department of Engineering Physics. He is affiliated with a host of programs on campus, including the Energy Institute
- “This Week in Technology” podcast:
<http://spectrum.ieee.org/podcast/energy/nuclear/the-future-of-nuclear-power>
- John M. Deutch, et al. 2009. “The Future of Nuclear Power.” Cambridge, MA: Massachusetts Institute of Technology.
- Jesse Jenkins, Ted Nordhaus, Michael Shellenberger. Nuclear as Usual: Why Fukushima will Change Less than You Think,” *atlantic.com*, March 23.
- Robert D. Ferber, James C. Warf, Sheldon C. Plotkin. 2008. “The Future of Nuclear Power,” *Monthly Review*, February.

Apr 12: Nuclear Power

- Panel Discussion: “The Future of Nuclear Power.” 7 p.m., Wisconsin Institutes for Discovery.

Group Presentations

April 18	Group #1 Presentation
April 23	Group #2 Presentation
April 25	Group #3 Presentation
May 2	Group #4 Presentation
May 7	Group #5 Presentation
May 9	Group #6 Presentation

Group Presentations - Possible Topics

Each student will provide ranked preferences for which three among these topics s/he would like to work on. sign up for one of the following topics, as explained in the description of assignments. I will then assign students to presentation groups. Topics:

- Stem Cell Research: Ethics, Politics and Money
- Military Technology

- Conflicts of Interest in Science
- Youth and Digital Technology
- Music Sharing and I
- Politics and Digital Technology
- Art and Science/ Art and Technology
- University-industry Relations
- Race and Biomedicine
- Genetically Modified Crops
- Bioterrorism
- Nanotechnology