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| Mark Brown, Ph.D.  Department of Political Science  CSU, Sacramento  Spring 2018 | Office: Tahoe Hall 3124  Office Hours: MW 10:30 – 11:45 a.m.,  1:30 – 2:45 p.m., and by appointment  Office Tel.: 916-278-6430  [mark.brown@csus.edu](mailto:mbrown@csus.edu) |

**Science, Technology, and Politics**

GOVT 169A (GE Area D)

MW 3:00 p.m. – 4:15 p.m., Alpine Hall 212

**Catalog Description**

Social and political dimensions of science and technology. Examines how science and technology both shape politics and are shaped by politics. Considers the role of scientific advisors in government and society; dilemmas of expert authority and bias; relations between experts and non-experts; science and technology in popular culture; science and technology policy; implications of emerging technologies such as genetic engineering and the Internet for civil rights, moral values, and democracy.

**Course Description**

Students in this course will explore the social and political dimensions of science and technology. We will examine how science and technology both shape politics and are shaped by politics. Science and technology play important roles in politics, economics, culture, and personal choices of all kinds. Conversely, science and technology are shaped by public policy, social movements, and cultural values. And conflicts over science and technology highlight tensions between experts and lay citizens, creating important challenges for democratic politics. This course is designed to move beyond the typical standoff between supporters and critics of science and technology. Science and technology are neither value-neutral tools of inevitable social progress nor inhuman forces of disenchantment and destruction. Rather, science and technology are intertwined with social values and political decisions. Understanding sociotechnical controversies, therefore, requires that we examine the values and decisions associated with the different positions on each controversy. People’s positions on such controversies often defy traditional categories of right and left, liberal and conservative. Course readings address the problem of defining science and its relation to politics; the relationships among experts, public officials, activists, and ordinary citizens; science literacy and science communication; and questions of race, class, gender, religion, and sexual orientation in science policy and research. We will also examine several key sociotechnical controversies, including debates over vaccines, genetically modified foods, climate change, intelligence research, behavioral genetics, and human enhancement technologies. Students are not expected to have any prior technical or scientific knowledge.

**GE Area D Learning Outcomes:**

In this course, students will:

1. Describe and evaluate ethical and social values in their historical and cultural contexts.

2. Explain and apply the principles and methods of academic disciplines to the study of social and individual behavior.

3. Demonstrate an understanding of the role of human diversity in human society, for example, race, ethnicity, class, age, ability/disability, sexual identity, gender and gender expression.

4. Explain and critically examine social dynamics and issues in their historical and cultural contexts.

**Course learning objectives**

After successfully completing this course, students will have:

* increased their historical and philosophical understanding of the relation between science and politics;
* improved their ability to articulate the strengths and weaknesses of competing positions on selected sociotechnical controversies;
* enhanced their ability to develop and articulate their own views on the politics of science and technology;
* improved their capacity to analyze and evaluate complex issues in writing and discussion.

**Course Materials**

All the assigned readings listed in the course schedule are available in the Pages section of the course’s Canvas site.

**Requirements and Grading**

Attendance and participation (100 points): This course requires active engagement. I expect students to arrive on time and stay for the entire class. If you ever need to leave early, please let me know before class and sit near the door. I will not formally take attendance, but repeated absence or tardiness will reduce your participation grade. You will receive two participation grades during the semester; the average will be your final participation grade. To accommodate diverse students, participation grades will be based on a variety of indicators, including the extent to which students: a) attend class regularly and on time, prepared to discuss the course material; b) offer thoughtful questions or comments about the assigned readings; c) actively participate in class discussion, group work, writing exercises, and other activities during class. Much of the reading assigned in this course is very difficult, so you will need to take an active approach to understanding the texts. Students should attend class having read (and sometimes re-read) *all* of the assigned reading, prepared to *ask questions* and engage in discussion. (For most students, taking careful notes on paper or a computer works better than simply marking texts with a pen or highlighter.) We will often look up specific passages in the course texts during class, so please bring the appropriate text to class. In calculating your workload for the semester, please consider that this course requires at least six hours per week outside of class (see the Sacramento State [Credit Hour Policy](http://www.csus.edu/acaf/academic%20resources/policies%20and%20procedures/credit%20hour%20policy.html)).

Weekly quizzes (200 points): On 12 days indicated in the syllabus, we will have an open-note quiz on the readings and lectures since the last quiz. Quizzes will focus on the main ideas from the course, and you will not need to recall minor details. To do well on the quizzes, you should complete the assigned reading, take notes on the *main ideas*, and ask questions in class. Missed quizzes cannot be made-up, but I will drop your lowest two scores. Many of the quiz questions will reappear on the midterm and final exams.

Analytical essay (200 points): Students will analyze and evaluate a selected sociotechnical issue in a 1500-word essay (about 5 pages, double-spaced, 1-inch margins, 12-point font). A preliminary outline of your essay is due on April 16 and is worth 5 percent of the total grade. The final essay is due on April 25. Essay topics, grading criteria, and a checklist of essential elements are on the course website. Late essays will be marked down one letter grade; essays more than three days late will be marked down two letter grades. After I grade your essay, you may submit a rewrite within one week of the day I return it. Your final essay grade will then be the average of the original and the rewrite. Rewrites must be submitted with the original, and they must include a detailed explanation of how you revised the essay.

Debate presentation: (50 points): Students will work in groups of three or four to present a 15-minute debate on a selected sociotechnical issue. Your debate topic will be the same issue on which you wrote your essay. Presentation guidelines are on the course website.

Mid-term Exam (200 points) and Final Exam (250 points): The exams will ask you to demonstrate a clear understanding of the main ideas and debates covered in the course. I will distribute a list of key terms to help you study. The midterm will cover the first half of the course; the final will cover the entire course. They will consist of multiple-choice and short-answer questions. You will need a blue book (any size) and a Scantron form no. 882-E. The exams are closed-book, but you may bring one single sheet of 8.5″ x 11” paper with notes, on both sides, in your own handwriting. You must then submit the notes with your exam.

Bonus points: Students can receive bonus points for writing reviews of the films, podcasts, and videos in the course schedule. Up to 10 bonus points per review, three reviews maximum. Reviews should be about 300 words, single-spaced, and they should include one paragraph summary and one paragraph evaluation. Reviews must be submitted in class during the week the material appears in the syllabus.

Grades: For the quizzes and the essay, students will receive a percentage of the total available points, according to the following scale: A+ (98-100%), A (95%), A- (92%), B+ (88%), B (85%), B- (82%), C+ (78%), C (75%), C- (72%), etc. Final course grades will be calculated as follows:

940 points or more: A

900-939 points: A-

870-899 points: B+

840-869 points: B

800-839 points: B-

770-799 points: C+

740-769 points: C

700-739 points: C-

670-699 points: D+

640-669 points: D

600-639 points: D-

600 points or less: F

**Wireless Devices**

Some students like to use a laptop or other wireless device to take notes during class, and some students use wireless devices to read assigned material. But in a classroom wireless devices can be extremely distracting, both for the person using the device and for others. Studies have shown that wireless devices often reduce student learning. (See Cindi May, “[A Learning Secret: Don’t Take Notes with a Laptop,](https://www.scientificamerican.com/article/a-learning-secret-don-t-take-notes-with-a-laptop/)” *Scientific American*, June 3, 2014.) Nonetheless, in this course *wireless devices may be used to take notes, but the wireless receiver must be turned off.* Cell phones must be turned off or set to vibrate or mute. I will ask students to put away wireless devices at specific times, such as during class discussions or when students are working in small groups. And of course students may not use wireless devices for shopping, texting, checking email, or other activities not directly related to the course. If you require special accommodation in this regard, please let me know.

**Additional Matters**

If you have a disability and require accommodations, please let me know, and please also contact the Office of Services to Students with Disabilities, Lassen Hall 1008, 916-278-6955. For help with writing, stop by the [University Reading and Writing Center](http://www.csus.edu/writingcenter/), Calaveras Hall 128, 916-278-6356, [writingcenter@csus.edu](mailto:writingcenter@csus.edu). For low-cost personal counseling, contact the [Center for Counseling and Diagnostic Services](http://www.csus.edu/coe/ccds/index.html) at Eureka Hall 421, (916) 278-6252, [ccds@csus.edu](mailto:ccds@csus.edu). More broadly, if you are having trouble with any aspect of the course, or if you would just like to talk over the material, please stop by during my office hours or make an appointment to see me. Don't wait until the end of the semester!

No audio or video recordings are allowed in class without my permission. To protect yourself against computer crashes and lost assignments, be sure to keep an electronic or paper copy of every assignment you submit. Please also keep all your returned assignments until you receive your final course grade for the semester. If one of your assignments gets lost, for whatever reason, you are responsible for providing a copy. Students can drop the course online during the first two weeks. The last day to drop with instructor and chair approval (census date) is February 16. Withdrawals after this date are only allowed for “serious and compelling” reasons. For more information see the campus [drop policy](http://www.csus.edu/cached/acad/faq/dropping-and-withdrawing.html) and the [Add/Drop/Withdrawal Form](https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&cad=rja&uact=8&ved=0ahUKEwiy8cXJ5dnVAhUBU2MKHfXZCyAQFggtMAE&url=http%3A%2F%2Fwww.csus.edu%2Fregistrar%2Fforms%2Fupdaterecord%2Fpetitiontoadddropwithdraw.pdf&usg=AFQjCNHbr7i4m8u6Dqlh6yrAA0txX7AvQg).

Finally, please remember that plagiarism—presenting someone else's work as your own—is a serious violation of academic integrity and university policy. Plagiarism will be punished in proportion to the severity of the case, but any plagiarism is likely to result in a failing grade for the course and may lead to additional penalties, including expulsion from the University. If you are not sure what plagiarism is, please ask me or consult the [library plagiarism website.](http://csus.libguides.com/plagiarism)

**Schedule of topics and reading assignments (subject to change)**

All readings are available on Canvas under the Pages tab. Some readings can also be accessed by clicking the hyperlinks below. Additional recommended materials are also available on Canvas.

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| 1 | Jan. 22  Jan. 24 | **SCIENCE, TRUTH, BULLSHIT, AND DEMOCRACY**  Introduction  QUIZ #1  Frankfurt, Harry. 1986. [On Bullshit.](https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0ahUKEwjk1JqfzcnYAhVK3FMKHa4jDc0QFggpMAA&url=https%3A%2F%2Fwww.stoa.org.uk%2Ftopics%2Fbullshit%2Fpdf%2Fon-bullshit.pdf&usg=AOvVaw3F1c9inoQPkEJy7pfzLXYM) *Raritan Quarterly Review* 6:2.  Ladyman, James. 2013. Toward a Demarcation of Science from Pseudoscience. In *Philosophy of Pseudoscience: Reconsidering the Demarcation Problem*. Edited by Massimo Pigliucci and Maarten Boudry. Chicago: University of Chicago Press, 2013, 45-59.  Barber, Benjamin R. 2010. America’s Knowledge Deficit. *The Nation*. Nov. 29, pp. 21-22.  Recommended:  VIDEOS: Carl T. Bergstrom and Jevin West, [Calling Bullshit](http://callingbullshit.org/videos.html), University of Washington, Spring 2017, Lectures 1-3, 8-10.  Hansson, Sven Ove. 2017. [Science and Pseudo-Science](https://plato.stanford.edu/entries/pseudo-science/). The Stanford Encyclopedia of Philosophy (Summer), ed. Edward N. Zalta.  Tavernise, Sabrina. 2016. [As Fake News Spreads Lies, More Readers Shrug at the Truth.](https://www.nytimes.com/2016/12/06/us/fake-news-partisan-republican-democrat.html?hpw&rref=us&action=click&pgtype=Homepage&module=well-region&region=bottom-well&WT.nav=bottom-well) *The New York Times*. Dec. 6.  Brown, Tracey 2016. [The idea of a ‘post-truth society’ is elitist and obnoxious](https://www.theguardian.com/science/blog/2016/sep/19/the-idea-post-truth-society-elitist-obnoxious). *The Guardian*. Sept. 29. | What is science?  What are non-science and pseudo-science?  What is bullshit?  How can we tell them apart in everyday life? |
| 2 | Jan. 29  Jan. 31 | **SCIENCE POLITICIZATION AND COMMERCIALIZATION**  Bocking, Stephen. 2004. The Uncertain Authority of Science. In *Nature’s Experts*. Piscataway, NJ: Rutgers University Press, pp. 16-44.  Jasanoff, Sheila. 1996. Is Science Socially Constructed -- And Can It Still Inform Public Policy? *Science and Engineering Ethics* 2(3): 263-76.  QUIZ #2  Caulfield, Timothy, and Ubaka Ogbogu. 2015. [The Commercialization of University-based Research: Balancing Risks and Benefits.](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4605102/)*BMC Med Ethics* 16: 70.  Morey, Maribel. 2014. [The Right Way and the Wrong Way to Privatize Science](https://www.theatlantic.com/business/archive/2014/05/the-right-way-and-the-wrong-way-to-privatize-science/371116/). *The Atlantic.* May 19.  Recommended:  Sarewitz, Dan. 2013. [Science Must Be Seen to Bridge the Political Divide](http://www.nature.com/news/science-must-be-seen-to-bridge-the-political-divide-1.12119). *Nature*. Jan. 2.  Jewett, Andrew. 2017. [How the March for Science Misunderstands Politics.](https://www.theatlantic.com/politics/archive/2017/04/march-for-science/523803/) *The Atlantic*. April 21.  Brown, Mark B. 2017. [Not Everything Political is Politics: Reflections on the March for Science.](http://www.publicseminar.org/2017/06/not-everything-political-is-politics/#.WUxOkIqQxAY) Public Seminar. June 2. | Is science  political?  Is science  democratic?  What are the implications of privatization and commercializa­tion of science? |
| 3 | Feb. 5  Feb. 7 | **SCIENCE AND THE PUBLIC**  Hallman, William K. 2017. What the Public Thinks and Knows About Science—and Why It Matters. In *The Oxford Handbook of the Science of Science Communication*. Edited by Kathleen Hall Jamieson, Dan M. Kahan, and Dietram A. Scheufele. Oxford: Oxford University Press.  QUIZ #3  Douglas, Heather. 2017. Science, Values, and Citizens. In *Eppur si muove: Doing History and Philosophy of Science with Peter Machamer*. Edited by M.P. Adams et al. Dordrecht: Springer, pp. 83-96.  Feinstein, Noah. 2011. Salvaging science literacy. *Science Education* 95(1): 168–185.  Recommended:  Pew Research, Science & Technology Knowledge Quiz: <http://www.pewresearch.org/quiz/science-knowledge>  Funk, Cary. 2017. [Mixed Messages about Public Trust in Science](http://www.pewinternet.org/2017/12/08/mixed-messages-about-public-trust-in-science/). Pew Research Center. Dec. 8.  Funk, Cary, and Lee Raine. 2017. [Americans Divided on Whether Recent Science Protests Will Benefit Scientists’ Causes](http://www.pewinternet.org/2017/05/11/americans-divided-on-whether-recent-science-protests-will-benefit-scientists-causes/). Pew Research Center. May 11. | What do ordinary citizens know and feel about science?  What is science literacy?  Does democracy depend on scientifically literate citizens? |
| 4 | Feb. 12  Feb. 14 | **POLITICS OF EXPERTISE**  Collins, Harry. 2014. Experts. In *Are We All Scientific Experts Now?* Cambridge, UK: Polity, pp. 49-79.  Pielke, Roger A. Jr. 2007. *The Honest Broker: Making Sense of Science in Policy and Politics.* Cambridge University Press, chap. 1-2.  QUIZ #4  Anderson, Elizabeth. 2011. Democracy, Public Policy, and Lay Assessments of Scientific Testimony. Episteme 8(2):144-164.  Collins, Harry, and Trevor Pinch. 1998. ACTing UP: AIDS Cures and Lay Expertise. In *The Golem at Large: What You Should Know about Technology*. Cambridge: Cambridge University Press, pp. 126-150.  Recommended:  Sarewitz, Daniel. 2004. How Science Makes Environmental Controversies Worse. *Environmental Science and Policy* 7: 385-403.  Kolowich, Steve. 2016. [The Water Next Time: Professor Who Helped Expose Crisis in Flint Says Public Science Is Broken](https://www.chronicle.com/article/The-Water-Next-Time-Professor/235136). *Chronicle of Higher Education.* Feb. 2.  VIDEO: TED Talk: [Naomi Oreskes: Why we should trust scientists](https://www.youtube.com/watch?v=RxyQNEVOElU) | What’s an  expert?  What’s the  proper role of experts in  politics?  How can lay  citizens evaluate competing expert claims? |
| 5 | Feb. 19  Feb. 21 | **VACCINES**  Daley, Mathew F., and Jason M. Glanz. 2011. [Straight Talk about Vaccination](https://www.scientificamerican.com/article/straight-talk-about-vaccination/). *Scientific American*. Sept. 1.  Goldenberg, Maya J. 2016. Public Misunderstanding of Science? Reframing the Problem of Vaccine Hesitancy. *Perspectives on Science* 24(5): 552-581.  QUIZ #5  Kahan, Dan M., and Ashley R. Landrum. 2017. A Tale of Two Vaccines – and Their Science Communication Environments. In *The Oxford Handbook of the Science of Science Communication*. Edited by Kathleen Hall Jamieson, Dan M. Kahan, and Dietram A. Scheufele. Oxford: Oxford University Press.  Recommended:  FILM: Frontline: “[The Vaccine War,](http://www.pbs.org/wgbh/frontline/film/vaccines)” April 27, 2010.  Hotez, Peter J. 2017. [How the Anti-Vaxxers Are Winning](https://www.nytimes.com/2017/02/08/opinion/how-the-anti-vaxxers-are-winning.html). *The New York Times*. Feb. 8.  Baidawi, Adam. 2017. ‘[No Jab, No Play’: How Australia Is Handling the Vaccination Debate](https://www.nytimes.com/2017/07/24/world/australia/vaccination-no-jab-play-pay.html). *The New York Times*. July 24.  Oster, Emily, and Geoffrey Kocks. 2018. [After a Debacle, How California Became a Role Model on Measles. *The New York Times*.](https://www.nytimes.com/2018/01/16/upshot/measles-vaccination-california-students.html) Jan. 16. | Are vaccines safe?  Why do some people oppose vaccines?  Should governments require that parents vaccinate their children? |
| 6 | Feb. 26  Feb. 28 | **GENETICALLY MODIFIED FOODS**  Harriss, John, and Drew Stewart. 2014. Science, Politics, and the Framing of Modern Agricultural Technologies. In *The Oxford Handbook of Food, Politics, and Society*. Edited by Ronald J. Herring. Oxford: Oxford University Press.  QUIZ #6  Ball, Molly. 2014. [Want to Know If Your Food Is Genetically Modified?](https://www.theatlantic.com/politics/archive/2014/05/want-to-know-if-your-food-is-genetically-modified/370812/) *The Atlantic*. May 14.  Nestle, Marion. 2016. Corporate Funding of Food and Nutrition Research: Science or Marketing? *JAMA Internal Medicine* 176(1):13-14.  Recommended  FILM: *Food Evolution* (2016). Available on [Amazon](https://www.amazon.com/dp/B074T14Z6P) or [Hulu](https://www.hulu.com/watch/1142581).  UC Berkeley public letter: “[Response to UC Berkeley Early Screening of ‘Food Evolution’](https://foodfirst.org/response-to-uc-berkeley-early-screening-of-food-evolution/),” June 16, 2017.  Keith Kloor, “[*Food Evolution* Is Scientifically Accurate. Too Bad It Won’t Convince Anyone](http://www.slate.com/articles/health_and_science/science/2017/06/food_evolution_is_correct_on_gmos_and_unconvincing.html),” *Slate*, June 23, 2017.  Funk, Cary. 2016. [The New Food Fights: U.S. Public Divides Over Food Science](http://www.pewinternet.org/2016/12/01/the-new-food-fights/). *Pew Research Center*. Dec. 1.  Johnson, Nathanael. 2013. [The Genetically Modified Food Debate: Where Do We Begin?”](http://grist.org/food/the-genetically-modified-food-debate-where-do-we-begin/) *Grist*. July 8.  VIDEO: TED Talk: Gary Hirschberg, “[Why Genetically Engineered Foods Should be Labeled](https://www.youtube.com/watch?v=pGyOwnqpCKk)” (2013). | Are GM foods safe to eat?  Why do some people object to them?  Should GM foods be labeled? |
| 7 | Mar. 5  Mar. 7 | **CLIMATE CHANGE**  Jamieson, Dale. 2011. The Nature of the Problem. In *The Oxford Handbook of Climate Change and Society*. Edited by John S. Dryzek, Richard B. Norgaard, and David Schlosberg. Oxford: Oxford University Press.  Hulme, Mike. 20008. The Conquering of Climate: Discourses of Fear and their Dissolution. *Geographical Journal* 174(1): 5–16.  QUIZ #7  Dunlap, Riley E., and Aaron M. McCright. 2011. Organized Climate Change Denial. In *The Oxford Handbook of Climate Change and Society*. Edited by John S. Dryzek, Richard B. Norgaard, and David Schlosberg. Oxford: Oxford University Press.  Norgaard, Kari Marie. 2011. Climate Denial: Emotion, Psychology, Culture, and Political Economy. In *The Oxford Handbook of Climate Change and Society*. Edited by John S. Dryzek, Richard B. Norgaard, and David Schlosberg. Oxford: Oxford University Press.  Kahan, Dan, et al. 2012. The Polarizing Impact of Science Literacy and Numeracy on Perceived Climate Change Risks. *Nature Climate Change* 2: 732–735.  Recommended:  [NASA Global Climate Change website](https://climate.nasa.gov/evidence/)  [National Oceanic and Atmospheric Administration (NOAA) Climate.gov](https://www.climate.gov/)  [U.S. National Climate Assessment](https://nca2014.globalchange.gov/)  [Climate Change at the National Academies](http://nas-sites.org/americasclimatechoices/)  FILM: Frontline, “[Climate of Doubt](http://www.pbs.org/wgbh/frontline/film/climate-of-doubt/),” October 23, 2012.  FILM: [“Merchants of Doubt”](https://www.amazon.com/Merchants-Doubt-Patricia-Callahan/dp/B00YO2IC3W) (Amazon rental)  [Climate Change Skepticism](https://www.theguardian.com/environment/climate-change-scepticism) at *The Guardian*  Davenport, Coral, and Eric Lipton. 2017. [How G.O.P. Leaders Came to View Climate Change as Fake Science](https://www.nytimes.com/2017/06/03/us/politics/republican-leaders-climate-change.html). *The New York Times*, June 3.  Popovich, Nada, and Livia Albeck-Ripka. 2017. [How Republicans Think About Climate Change—in Maps](https://www.nytimes.com/interactive/2017/12/14/climate/republicans-global-warming-maps.html?_r=0). *The New York Times.* Dec. 14.  Hartwell Group. 2011. [*Climate Pragmatism: Innovation, Resilience, No Regrets*](http://thebreakthrough.org/archive/climate_pragmatism_innovation)*.* June 25.  VIDEOS: Partnership for Responsible Growth, [Climate ad series: Shaping the national conversation](https://www.partnershipforresponsiblegrowth.org/pricecarbon/)  VIDEO: Naomi Oreskes, ["Climate change denial: Where do we go from here?"](https://www.youtube.com/watch?v=GHgMFT-1ut4) Peter Wall Institute for Advanced Studies, Fall 2016.  VIDEO: Mike Hulme, [“Why We Disagree about Climate Change”](https://www.youtube.com/watch?v=LqJVHzxWQDU) (2011)  VIDEO: Roger Pielke, [“The Climate Fix”](https://www.youtube.com/watch?v=6TMrzZqnIPE) (2012) | Is climate change a scientific or political problem?  What are the key scientific uncertainties and political disputes about climate change?  Why do people disagree about climate change?  What’s the best way to respond to disagreements over climate change? |
| 8 | Mar. 12  Mar. 14 | QUIZ #8  Long, Jane C. S., Frank Loy, M. Granger Morgan. [Policy: Start Research on Climate Engineering](http://www.nature.com/news/policy-start-research-on-climate-engineering-1.16826). *Nature*. Feb. 4.  Klein, Naomi. 2015. [Why Geoengineering Is ‘Untested and Untestable’](https://www.thenation.com/article/why-geoengineering-untested-and-untestable/). *The Nation*. Feb. 6.  Yildiz, Atakan. 2017. [Why You Need to Get Involved in the Geoengineering Debate – Now.](https://theconversation.com/why-you-need-to-get-involved-in-the-geoengineering-debate-now-85619) *The Conversation.* October 19.  Recommended:  Pierrehumbert, Raymond T. 2015. [Climate Hacking is Barking Mad](http://www.slate.com/articles/health_and_science/science/2015/02/nrc_geoengineering_report_climate_hacking_is_dangerous_and_barking_mad.html). *Slate*. Feb. 10.  Keith, David W., and Gernot Wagner. 2017 [Fear of Solar Geoengineering Is Healthy – But Don't distort Our Research](https://www.theguardian.com/environment/2017/mar/29/criticism-harvard-solar-geoengineering-research-distorted). *The Guardian.* Mar. 29.  Keith, David, and Mike Hulme. 2013. [Climate Science: an Geoengineering Save the World?](https://www.theguardian.com/sustainable-business/blog/climate-science-geoengineering-save-world) *The Guardian*. Nov. 29.  VIDEO: TED Talk: David Keith, "[A critical look at geoengineering against climate change"](http://www.ted.com/talks/david_keith_s_surprising_ideas_on_climate_change?language=en) (2007)  MIDTERM EXAM | What is geoengineering?  Should we fund, fund, promote, discourage, or ban research on geoengineering? |
| SPRING BREAK | | | |
| 9 | Mar. 26  Mar. 28 | **RACE, GENDER, AND SCIENCE**  Keller, Evelyn Fox. 1987. The Gender/Science System: Or, Is Sex to Gender as Nature Is to Science? *Hypatia* 2(3): 37-49.  Keller, Evelyn Fox. 1995. Gender and Science: Origin, History and Politics. *Osiris* 10: 27-38.  Barres, Ben A. 2006. [Does Gender Matter?](https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0ahUKEwj8qMPxpdHYAhXIs1MKHZKgD-oQFggsMAA&url=http%3A%2F%2Fwww.nature.com%2Fscitable%2Fcontent%2Fdoes-gender-matter-by-ben-a-barres-10602856&usg=AOvVaw09Sv4EkLM_14HpQFFieBAr) *Nature* 442 (July 13): 133–136.  QUIZ #9  Pollack, Eileen. 2013. [Why Are There Still So Few Women in Science?](http://www.nytimes.com/2013/10/06/magazine/why-are-there-still-so-few-women-in-science.html) *The New York Times*. Oct. 3.  Funk, Cary, and Kim Parker. 2018. [Women and Men in STEM Often at Odds Over Workplace Equity](http://www.pewsocialtrends.org/2018/01/09/women-and-men-in-stem-often-at-odds-over-workplace-equity/?utm_source=Pew+Research+Center&utm_campaign=46355fe285-EMAIL_CAMPAIGN_2018_01_10&utm_medium=email&utm_term=0_3e953b9b70-46355fe285-399766005). Pew Research Center. Jan. 9. | How has gender shaped modern science?  Is science biased against women? |
| 10 | Apr. 2  Apr. 4 | Roberts, Dorothy. 2011. *Fatal Invention: How Science, Politics, and Big Business Re-Create Race in the Twenty-First Century.* New York: The New Press, chap. 1-2, pp. 3-54.  American Anthropological Association, [Statement on Race](http://www.americananthro.org/ConnectWithAAA/Content.aspx?ItemNumber=2583), May 17, 1998.  QUIZ #10  Stern, Alexandra. 2005. Eugenics and Historical Memory in America. *History Compass* 3: 1-11.  Platt, Tony. 2005. Engaging the Past: Charles M. Goethe, American Eugenics, and Sacramento State University. *Social Justice* 32(2):17-33.  Recommended:  VIDEO: [Deadly Deception: Tuskegee Syphilis Study](https://www.youtube.com/watch?v=qNa8CnC4sSU) (YouTube) VIDEO: [Neil deGrasse Tyson on racism, equal opportunities and genetics](https://www.youtube.com/watch?time_continue=3695&v=KEeBPSvcNZQ) FILM: [“Race: The Power of an Illusion: The Difference Between Us”](http://proxy.lib.csus.edu/login?url=http://fod.infobase.com/PortalPlaylists.aspx?wID=106564&xtid=49734) | What is race?  What is eugenics?  How has modern science both reinforced and challenged popular ideas about race?  How has race shaped research on human health and behavior? |
| 11 | Apr. 9  Apr. 11 | Duster, Troy. 2006. Behavioral Genetics and Explanations of the Link Between Crime, Violence, and Race. In *Wrestling with Behavioral Genetics: Science, Ethics, and Public Conversation.* Edited by E. Parens, A. Chapman, and N. Press. Baltimore: Johns Hopkins University Press, pp. 150-175.  QUIZ #11  Roberts, Dorothy. 2011. Tracing Racial Roots. In *Fatal Invention: How Science, Politics, and Big Business Re-Create Race in the Twenty-First Century.* New York: The New Press, chap. 10, pp. 226-257.  Recommended:  Velasquez-Manoff, Moises. 2017. [What Doctors Should Ignore](https://www.nytimes.com/2017/12/08/opinion/sunday/should-medicine-discard-race.html?_r=0). *The New* York Times. Dec. 8. VIDEO: Dorothy Roberts, [“The problem with race-based medicine”](https://www.ted.com/talks/dorothy_roberts_the_problem_with_race_based_medicine) | Can genetic testing predict human health or behavior?  Can genetic testing identify a person’s race? |
| 12 | Apr. 16  Apr. 18 | ESSAY OUTLINE DUE  Ossorio, Pilar N. 2011. Myth and Mystification: The Science of Race and IQ. In *Race and the Genetic Revolution: Science, Myth, and Culture.* Edited bySheldon Krimsky and Kathleen Sloan. New York: Columbia University Press, pp. 173-194.  Kourany, Janet A. 2016. Should Some Knowledge Be Forbidden? The Case of Cognitive Differences Research. *Philosophy of Science* 83(5): 779-790. McWhorter, John. 2017. [Stop Obsessing Over Race and IQ](http://www.nationalreview.com/article/449208/race-iq-debate-serves-no-purpose). *National Review.* July 5. VerBruggen, Robert. 2017. [Why I Write about Race and IQ](http://www.nationalreview.com/article/449184/race-iq-dont-suppress-public-discussion-issue). *National Review.* July 5.  QUIZ #12  Hughey, Matthew W., and W. Carson Byrd. 2016. Beautiful Melodies Telling Me Terrible Things: The Future of Race and Genetics for Scholars and Policy-Makers. *The Annals of the American Academy of Political and Social Science* 661(1): 238-258.  Recommended:  Conley, Dalton, and Jason Fletcher. 2017. [What Both the Left and Right Get Wrong About Race](http://nautil.us/issue/48/chaos/what-both-the-left-and-right-get-wrong-about-race). *Nautilus.* June 1. PODCAST: Sam Harris, “[Forbidden Knowledge A Conversation with Charles Murray](https://samharris.org/podcasts/forbidden-knowledge/),” *Waking Up* podcast.Turkheimer, Eric, Kathryn Paige Harden, and Richard E. Nisbett. 2017. [Charles Murray is once again peddling junk science about race and IQ](https://www.vox.com/the-big-idea/2017/5/18/15655638/charles-murray-race-iq-sam-harris-science-free-speech). *Vox.* May 18. Hayden, Erika Check. 2013. [Ethics: Taboo Genetics.](http://www.nature.com/news/ethics-taboo-genetics-1.13858) *Nature*. October 2. | Is there a genetic link between race and intelligence?  Why do some people study race and intelligence?  Should we fund, promote, discourage, or ban research on race and intelligence?  How do social values and political interests shape research on race and genetics? |
| 13 | Apr. 23  Apr. 25 | **EUGENICS AND HUMAN ENHANCEMENT**  Bostrom, Nick. 2003. Human Genetic Enhancements: A Transhumanist Perspective. *The* *Journal of Value Inquiry* 37: 493–506.  Sandel, Michael J. 2004. [The Case Against Perfection](https://www.theatlantic.com/magazine/archive/2004/04/the-case-against-perfection/302927/). *The Atlantic.* April.  FINAL ESSAY DUE  Recommended  FILM[: “Who's Afraid of Designer Babies? The Ethics of Genetic Screening”](https://csus-primo.hosted.exlibrisgroup.com/primo-explore/fulldisplay?docid=01CALS_ALMA71375354410002901&context=L&vid=01CALS_USL&search_scope=EVERYTHING&tab=everything&lang=en_US) (2004)  FILM: [“After Darwin: Genetics, Eugenics, and the Human Genome”](http://proxy.lib.csus.edu/login?url=http://digital.films.com/PortalPlaylists.aspx?aid=21093&xtid=10434) (1999).  VIDEO: Gregory Stock: [“To Upgrade is Human”](http://www.ted.com/talks/gregory_stock_to_upgrade_is_human) (2003).  VIDEO: Paul Root Wolpe: [“It's time to question bio-engineering”](http://www.ted.com/talks/paul_root_wolpe_it_s_time_to_question_bio_engineering?language=en) (2010). | What’s at stake in debates over human genetic enhancement?  Are human genetic enhancements morally defensible? |
| 14 | Apr. 30  May 2 | Student presentations  Student presentations |  |
| 15 | May 7  May 9 | Student presentations  Class summary and review |  |
|  | May 14 | 3:00 pm - 5:00 pm  FINAL EXAM |  |
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