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Law, Science, and Society in America

Harvard Kennedy School & Sociology

Spring 2021

Tuesdays 4:30 – 7:15 PM

Via Zoom

Course Description

This course explores the tensions, contradictions, and mutual dependencies that characterize the relations between law, science, and technology in contemporary societies, drawing particularly on the US experience. It situates the interactions of law, science, and technology in relation to wider transformations in modern culture and society. It examines how ideas of evidence, expertise, and public reason have evolved over the past half-century in response to such phenomena as the rise of environmentalism, the risk society, race and gender activism, and the genetic and information revolutions. “Law” is broadly construed to include the activities of legislatures, regulatory agencies, and courts as they respond to citizens. “Science” correspondingly is shorthand for both scientific discoveries and technological innovations. Throughout the course, we seek to understand how the law’s tacit assumptions and explicit rules connect the power and authority of science and technology to those of other social institutions, such as state, market, and expert professional bodies. Students learn how law, science, and technology work together to sustain and reproduce deep-seated commitments to particular forms of evidence and reasoning, particular notions of liberty, and particular understandings of what constitutes a well-ordered society.

Readings:

Required readings will be posted on the Canvas course website.

For additional background, interested students may consult:

S. Jasanoff, *Science at the Bar: Law, Science and Technology in America* (Cambridge, MA: Harvard University Press, 1990).

S. Jasanoff, *The Ethics of Invention* (New York: Norton, 2016).

Requirements and Grading:

1. (15%) Regular attendance and participation
2. (25%) Weekly assignments (350 words max)
3. (25%) Short issues paper (5 pgs.) on an appropriate topic (due **April 9**)
4. (35%) Final research paper (10 pgs., due **May 7**)

Collaboration Policy

Discussion and the exchange of ideas are essential to academic work and professional practice in both law and science. Throughout this course, you are encouraged to discuss the readings and your thoughts about them with your classmates and to share ideas. However, you should ensure that any written work you submit for evaluation is the result of your own research and writing and reflects your own approach to the topic. You must also adhere to standard citation practices in the social sciences and humanities and properly cite any books, articles, websites, lectures, etc. that have helped you in your work. If you received substantial help with your writing (e.g., written feedback or extensive editorial comments on drafts, etc.), you must also acknowledge this assistance.

COURSE OUTLINE AND READINGS

PART I: MAKING EXPERT AUTHORITY

This section addresses the role of the law in the construction of expertise and evidence. It traces the law's attempts to establish reliable facts as a prerequisite for delivering justice. Beginning with the law's role in defining science itself in the US Creationism cases, attention is paid to case law in making and unmaking the meaning of expertise in decisions on visual evidence and DNA fingerprinting. We consider how background assumptions about correct ways of knowing and reasoning, as well as about social categories such as race enter into the law's determination of what counts as expertise.

January 26: Introduction: Competing Authorities

Overview of syllabus and requirements

S. Jasanoff, "What Judges Should Know about the Sociology of Science," *Judicature*, Vol. 77(2):77-82 (1993).

February 2: Science, Religion, and Citizenship under Law

S. Jasanoff, "Temptations of Technocracy in the Century of Engineering," *The Bridge* (50th Anniversary Issue), January 7, 2021, <https://www.nae.edu/245007/Temptations-of-Technocracy-in-the-Century-of-Engineering>.

S. Goldberg, *Seduced by Science: How American Religion Has Lost Its Way* (New York: NYU Press, 1999), Ch. 3 ("Using the Bible as a Science Text"), 25-39.

Tammy Kitzmiller, et al. v. Dover Area School District, et al., 400 F. Supp. 2d 707 (2005).

D. Masci, "Darwin in America: The evolution debate in the United States," Pew Research Center, February 6, 2019, <https://www.pewforum.org/essay/darwin-in-america/> [Skim].

C. Funk, "How highly religious Americans view evolution depends on how they're asked about it," Pew Research Center, February 6, 2019, <https://www.pewresearch.org/fact-tank/2019/02/06/how-highly-religious-americans-view-evolution-depends-on-how-theyre-asked-about-it/>.

M. Dinzeo, "Ninth Circuit Tosses Claims of Anti-Hindu Bias in California Schools," *Courthouse News Service*, September 3, 2020, <https://www.courthousenews.com/ninth-circuit-tosses-claims-of-anti-hindu-bias-in-california-schools/>.

February 9: Who is an expert?

Frye v. United States, 293 F. 1013 (D.C. Cir. 1923).

Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579, 113 S.Ct. 2786 (1993).

S. Jasanoff, "Science, Common Sense, and Judicial Power in U.S. Courts," *Daedalus* 147(4):15-27 (2018).

M. Specter, "Do Fingerprints Lie?," *New Yorker*, May 20, 2002, <https://www.newyorker.com/magazine/2002/05/27/do-fingerprints-lie>.

United States v. Llera Plaza, 188 F. Supp. 2d 549 (E.D.Pa. 2002).

J. Mnookin, "Fingerprints: Not a Gold Standard," *Issues in Science and Technology* 20(1): 47-54 (2003), <http://www.issues.org/20.1/mnookin.html>.

D. Goodin, "Attackers can bypass fingerprint authentication with an ~80% success rate," April 8, 2020, <https://arstechnica.com/information-technology/2020/04/attackers-can-bypass-fingerprint-authentication-with-an-80-success-rate/>.

Optional:

T. Golan, *Laws of Men and Laws of Nature* (Cambridge, MA: Harvard University Press, 2004), Ch. 3 ("Who Shall Decide Where Experts Disagree: The Nineteenth-Century Debates"), 107-143.

J. B. Kadane and J. J. Koehler, "Certainty and Uncertainty in Reporting Fingerprint Evidence," *Daedalus* 147(4):119-134 (2018).

February 16: DNA: The Infallible Identifier

J. Aronson, *Genetic Witness* (New Brunswick, NJ: Rutgers University Press, 2007), Ch. 3 ("DNA on Trial"), 33-55.

S. Jasanoff, "The Eye of Everyman: Witnessing DNA in the Simpson Trial," *Social Studies of Science* 28(5-6):713-740 (1998).

D. Starr, "Forensics gone wrong: When DNA snares the innocent," *Science*, March 7, 2016, <https://www.sciencemag.org/news/2016/03/forensics-gone-wrong-when-dna-snares-innocent>

E. Rosenberg, "Can DNA Evidence Be Too Convincing? An Acquitted Man Thinks So," *New York Times*, May 16, 2017, <https://www.nytimes.com/2017/05/16/nyregion/can-dna-evidence-be-too-convincing-an-acquitted-man-thinks-so.html?mcubz=2>.

- G. Kolata and H. Murphy, "The Golden State Killer Is Tracked Through a Thicket of DNA, and Experts Shudder," *New York Times*, April 27, 2018, <https://www.nytimes.com/2018/04/27/health/dna-privacy-golden-state-killer-genealogy.html>.
- S. Jacobs, "Annie Dookhan pursued renown along a path of lies," *Boston Globe*, February 3, 2013, <http://www.bostonglobe.com/metro/2013/02/03/chasing-renown-path-paved-with-lies/Axw3AxwmD33lRwXatSvMCL/story.html>. See also The Marshall Project, <https://www.themarshallproject.org/records/2558-annie-dookhan> [Skim].

PART II: SECURING THE SELF

This section looks at the law's role in reestablishing social order when settled expectations are destabilized through science and technology. We are at one and the same time living entities, enjoying liberties and subject to constraints because of advances in S&T, and citizens whose lives and behaviors are regulated by law. Yet even the assumption that human existence is tied to a biological body is being challenged through the penetration of information technologies into the ways we live. How are the spaces of the self protected in this era of technological convergences?

February 23: Brain, Mind, and Law

- A. Jasanoff, *The Biological Mind* (New York: Basic Books, 2018), Ch. 6 ("No Brain Is an Island").
- J. Dumit, *Picturing Personhood: Brain Scans and Biomedical Identity* (Cambridge, MA: MIT Press, 2004), Ch. 4 ("Ways of Seeing Brains as Expert Images"), 109-133.
- G. Miller, "Neuroscience Is Getting Its Day in Court, Whether It's Ready or Not," *Wired*, December 16, 2013, <http://www.wired.com/wiredscience/2013/12/brain-science-law/>.
- Roper v. Simmons*, 543 US 551 (2005), <http://www.law.cornell.edu/supct/html/03-633.ZS.html>.
- Allen v. Bloomfield Hills School District* 760 N.W. 811 (Mich. Ct. App. 2008), <https://caselaw.findlaw.com/mi-court-of-appeals/1143607.html>.
- J. Lobel and H. Akil, "Law and Neuroscience: The Case of Solitary Confinement" *Daedalus* 147(4): 61-75 (2018).
- E. Brown, "The brain, the criminal and the courts," *Knowable Magazine*, August 30, 2019, <https://knowablemagazine.org/article/mind/2019/neuroscience-criminal-justice>.

March 2: Privacy in Digital Space

- U.S. v. Jones*, 565 U.S. 400 (2012), <http://www.law.cornell.edu/supremecourt/text/10-1259> [Read Scalia majority opinion].
- A. B. Talai, "Drones and *Jones*: The Fourth Amendment and Police Discretion in the Digital Age," *California Law Review* 102:729-780 (2014) [Read especially Parts I and II], <https://www.californialawreview.org/print/4drones-and-jones-the-fourth-amendment-and-police-discretion-in-the-digital-age/>.
- Clapper v. Amnesty Int'l USA*, 568 U.S. 398 (2013), http://www.supremecourt.gov/opinions/12pdf/11-1025_1hdj.pdf.
- N. Confessore, "The Unlikely Activists Who Took On Silicon Valley—and Won," *New York Times*, August 14, 2018, <https://www.nytimes.com/2018/08/14/magazine/facebook-google-privacy-data.html>.
- J. Cowan and N. Singer, "How California's New Privacy Law Affects You," *New York Times*, January 3, 2020, <https://www.nytimes.com/2020/01/03/us/ccpa-california-privacy-law.html>.
- S. Grey et al., "California's Prop 24, the 'California Privacy Rights Act,' Passed. What's Next?," *Future of Privacy Forum*, November 4, 2020, <https://fpf.org/blog/californias-prop-24-the-california-privacy-rights-act-passed-whats-next/>.
- Privacy International, "Initial analysis of Indian Supreme Court decision on Aadhaar," September 26, 2018, <https://privacyinternational.org/long-read/2299/initial-analysis-indian-supreme-court-decision-aadhaar>.

PART III: PRODUCING PROPERTY

Human rights, as understood in the law, include not only those attaching to the person but also those involving property. What can human beings appropriately own (e.g., not other human beings), and how should lines be drawn between public and private property? More generally, what sorts of transactions are best left to the "freedom" of the market and which demand control through law?

March 9: Invention, Innovation, and Property

- Diamond v. Chakrabarty*, 447 U.S. 303 (1990).
- F. Murray, "Patenting Life: How the Oncomouse Patent Changed the Lives of Mice and Men," in M.

- Biagioli, P. Jaszi, and M. Woodmansee, eds., *Making and unmaking Intellectual Property: Creative Production in Legal and Cultural Perspective* (Chicago: University of Chicago Press, 2011), 399-411.
- S. Jasanoff, "Taking Life: Private Rights in Public Nature," in K. Sunder Rajan, ed., *Lively Capital: Biotechnologies, Ethics, and Governance in Global Markets* (Durham: Duke University Press, 2012), 155-183.
- R. S. Eisenberg and R. Cook-Deegan, "Universities: The Fallen Angels of Bayh-Dole?" *Daedalus* 147(4):76-89 (2018).
- G. Tett, "Who owns our data when a company dies?" *Financial Times*, December 20, 2018.

March 16: Academic Wellness Day – No Class

March 23: Owning the Stuff of Life

- S. Parthasarathy, *Building Genetic Medicine: Breast Cancer Technology and the Comparative Politics of Health Care* (Cambridge, MA: MIT Press, 2007), Ch. 3 ("Eliminating the Competition and Ensuring Success"), 115-144.
- Association for Molecular Pathology et al. v. USPTO and Myriad Genetics*, 569 US (2013), <https://www.law.cornell.edu/supremecourt/text/12-398>.
- Watch: Chris Hansen (ACLU) on building Myriad case, Harvard Science and Democracy Lecture, November 12, 2013: <http://vimeo.com/80093607> (especially mins. 7-12; 28-30).
- J. S. Sherkow, "The CRISPR patent decision didn't get the science right. That doesn't mean it was wrong," *STAT*, September 11, 2018, <https://www.statnews.com/2018/09/11/crispr-patent-decision-science/>.
- J. Cohen, "The latest round in the CRISPR patent battle has an apparent victor, but the fight continues," *Science*, September 11, 2020, <https://www.sciencemag.org/news/2020/09/latest-round-crispr-patent-battle-has-apparent-victor-fight-continues>.
- W. Isaacson, "This Year's Nobel Prize in Chemistry Honors a Revolution," *New York Times*, October 7, 2020, <https://www.nytimes.com/2020/10/07/opinion/nobel-prize-chemistry-2020-doudna-charpentier.html>.

PART IV: CHANGING SOVEREIGNTIES

In a globalizing world, how do the dynamics of law, science and technology in any one nation affect possibilities for development and social justice beyond its borders? What kinds of new transnational sovereign powers are emerging, and how can they be rendered accountable? Do we need to think about new constitutional arrangements for the global world, and what might such arrangements look like?

March 30: Cyborg (or Technohuman) Rights and Responsibilities

- S. Jasanoff, *The Ethics of Invention* (New York: Norton, 2016), Ch. 6 ("Information's Wild Frontiers"), 147-176.
- P. Lin, "What If Your Autonomous Car Keeps Routing You Past Krispy Kreme?" Center for Internet and Society, Stanford Law School, January 22, 2014, <http://cyberlaw.stanford.edu/publications/what-if-your-autonomous-car-keeps-routing-you-past-krispy-kreme>.
- I. Bogost, "Can You Sue a Robocar?" *The Atlantic*, March 20, 2018, <https://www.theatlantic.com/technology/archive/2018/03/can-you-sue-a-robocar/556007/>.
- Riley v. California*, 573 U.S. 373 (2014), https://www.supremecourt.gov/opinions/13pdf/13-132_819c.pdf [read Roberts opinion].
- Carpenter v. United States*, 585 U.S. ____ (2018), https://www.supremecourt.gov/opinions/17pdf/16-402_h315.pdf [Read Roberts opinion].
- D. Harwell and E. Dou, "Huawei tested AI software that could recognize Uighur minorities and alert police, report says," *Washington Post*, December 8, 2020, <https://www.washingtonpost.com/technology/2020/12/08/huawei-tested-ai-software-that-could-recognize-uighur-minorities-alert-police-report-says/>.

April 6: Right to be Forgotten

- V. Mayer-Schoenberger, *Delete: The Virtue of Forgetting in the Digital Age* (Princeton: Princeton University Press, 2009), Ch. 3 ("The Demise of Forgetting—and Its Drivers"), 50-91.
- Case C-131/12, *Google Spain SL v. Agencia Española de Protección de Datos* (AEPD), (May 13, 2014), <http://curia.europa.eu/juris/document/document.jsf?text=&docid=152065&doclang=EN>

- [<http://perma.cc/ED5L-DZRK>]
 General Data Protection Regulation (GDPR), Article 17, Right to erasure ('right to be forgotten'),
<https://gdpr-info.eu/art-17-gdpr/>.
 L. Floridi, "Should You Have The Right To Be Forgotten On Google? Nationally, Yes. Globally, No." *New Perspectives Quarterly*, 32 (2015): 24–29.
 M. L. Jones, *Ctrl + Z: The Right to Be Forgotten* (New York: NYU Press, 2016), Ch. 5 ("Ctrl + Z in Legal Cultures"), 137-164.

April 13: Machine Dreams: Algorithmic Justice

- J. Angwin, "Make Algorithms Accountable," *New York Times*, August 1, 2016, <https://www.nytimes.com/2016/08/01/opinion/make-algorithms-accountable.html>.
 E. T. Israni, "When an Algorithm Helps Send You to Prison," *New York Times*, October 26, 2017, <https://www.nytimes.com/2017/10/26/opinion/algorithm-compas-sentencing-bias.html>.
 J. Buolamwini, "When the Robot Doesn't See Dark Skin," *New York Times*, June 21, 2018, <https://www.nytimes.com/2018/06/21/opinion/facial-analysis-technology-bias.html>.
 S. T. Levin, "Imprisoned by algorithms: the dark side of California ending cash bail," *Guardian*, September 7, 2018, <https://www.theguardian.com/us-news/2018/sep/07/imprisoned-by-algorithms-the-dark-side-of-california-ending-cash-bail>.
 D. Kehl, P. Guo, and S. Kessler, "Algorithms in the Criminal Justice System: Assessing the Use of Risk Assessments in Sentencing," Responsive Communities Initiative, Berkman Klein Center for Internet & Society (2017), https://dash.harvard.edu/bitstream/handle/1/33746041/2017-07_responsivecommunities_2.pdf.

April 20: Governing the Genie

- J. M. Balkin and J. Zittrain, "A Grand Bargain to Make Tech Companies Trustworthy," *Atlantic*, October 3, 2016, <https://www.theatlantic.com/technology/archive/2016/10/information-fiduciary/502346/>.
 E. Griffith, "The Ugly Unethical Underside of Silicon Valley," *Fortune*, December 28, 2016, <http://fortune.com/silicon-valley-startups-fraud-venture-capital/>.
 U.S. v. *Ulbricht*, 31 F. Supp. 3d 540 (S.D.N.Y. 2014), <http://online.wsj.com/public/resources/documents/ulbricht3.pdf> [Read Indictment and Count Four].
 H. Farrell, "Dark Leviathan: Why the Hidden Internet Can't Be a Libertarian Paradise," *Aeon*, February 20, 2015. <https://aeon.co/essays/why-the-hidden-internet-can-t-be-a-libertarian-paradise>.
 K. Han, "Broken promises: How Singapore lost trust on contact tracing privacy," *MIT Technology Review*, January 11, 2021, <https://www.technologyreview.com/2021/01/11/1016004/singapore-tracetgether-contact-tracing-police/>.
 T. O'Reilly, "We Have Already Let The Genie Out of The Bottle," The Rockefeller Foundation Blog, July 8, 2020, <https://www.rockefellerfoundation.org/blog/we-have-already-let-the-genie-out-of-the-bottle/>.

April 27: New Sovereignities

- S. Jasanoff, Pathologies of Liberty: Public Health Sovereignty and the Political Subject in the Covid-19 Crisis, *Cahiers Droit, Sciences & Technologies* 11 (2020), <https://journals.openedition.org/cdst/2982>
 J. Kavenna, "Shoshana Zuboff: 'Surveillance capitalism is an assault on human autonomy'," *The Guardian*, October 4, 2019, <https://www.theguardian.com/books/2019/oct/04/shoshana-zuboff-surveillance-capitalism-assault-human-autonomy-digital-privacy>.
 D. E. Sanger, J. E. Barnes, R. Zhong, and M. Santora, "America Pushes Allies to Fight Huawei in New Arms Race With China," *New York Times*, January 26, 2019, <https://www.nytimes.com/2019/01/26/us/politics/huawei-china-us-5g-technology.html?>
 D. Meyer, "A Facebook case in Belgium could open the floodgates for GDPR privacy suits," *Fortune*, January 13, 2021, <https://fortune.com/2021/01/13/facebook-belgium-ireland-privacy-tracking-cjeu-bobek-max-schrems/>.

Optional:

- S. Jasanoff, "World of Experts: Science and Global Environmental Constitutionalism," *BC Environmental Affairs Law Review* 40:439-452 (2013), <http://lawdigitalcommons.bc.edu/ealr/vol40/iss2/6/>.

