DSCI 305: Data, Ethics, and Society

Monday/Wednesday/Friday 11:00-11:55am

Professor Elizabeth Petrick

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Office: Humanities 324 or Zoom
Office Hours: By Appointment – in person (outside on campus) or over Zoom

TA: James Myers

Course Description:

This course concerns the history of ethical concerns with data. We will evaluate ethical issues throughout the long history of humans creating and using data, in order to address questions such as: How have people been turned into data for social and medical purposes? How have people resisted becoming data? Who has been allowed to own or control data? And how is data collected and utilized today alongside technologies such as biometrics and artificial intelligence? Our goal is build a toolset for analyzing the ethics behind technological use and development so that data science may be used in ways that are more responsible and beneficial for society.

Objectives:

By the end of this course students will:

- Be able to explain the history of ethical concerns with data
- Be able to apply ethical reasoning when gathering, processing, and analyzing data
- Explore their individual ethical commitments as future data scientists

COVID Accommodations:

Most classes will be conducted synchronously over Zoom. Lecture recordings will be made available on Canvas. Attendance will be taken. Please be no more than 5 minutes late for class or you may miss necessary material. Participation in class discussions and on the Canvas discussion board are expected. Please keep your camera on, if possible. We will begin completely online but may switch to a hybrid format if it becomes safe to do so. Some days are designated as asynchronous activity days that ask you to complete a short activity at your own pace. These activities must be completed prior to the following class meeting, as they will be discussed during the beginning of class.

Both short essays will be graded pass/fail. 0 = not submitted; 50% = unsatisfactory; 100% = satisfactory.

If you absolutely cannot participate in a group project this semester, you may request to do an individual project instead, with slightly different requirements.

The project presentation may be recorded in advance.

Required Readings:

All readings will be available on Canvas. Readings should be completed prior to class.

Course Requirements:

[20%] Participation

You are expected to participate in class discussions and in-class assignments. Attendance at all classes is required. There will be a grade deduction after more than 3 absences, unless officially excused. Persistent tardiness (more than 15 minutes late) will result in a grade deduction.

[10%] 10 Reading Responses

You will write a response to the week's readings and post it in the relevant Canvas discussion. You must do 10 total. Each response should be roughly 250 words long (2 paragraphs) on your thoughts about the readings. Reading responses are due on Canvas by Friday night. Late responses will not receive credit.

[10%] Short Essay #1
[10%] Short Essay #2

[50%] Group Ethics Project

The main project for this class will involve you analyzing a real-life ethical situation in data science and proposing a solution to the problem. It is divided into two components and a presentation:

[20%] 1. Evaluation of the ethics and social impact of your data science case study
[20%] 2. Proposal for a solution to address the case study
[10%] Presentation

Late Paper Submissions: Papers will lose one grade for every day late (A to A-, A- to B+). Papers will not be accepted more than 1 week late. Late final papers are not accepted.

Paper Formatting: All papers must be typed, double-spaced, 12 pt standard font (Times, Helvetica, Arial, etc), 1" margins. Acceptable digital file types: .doc or .docx

Grading Scale:

97-100	***A+***
93-96	***A***
90-92	***A-***
87-89	***B+***
83-86	***B***
80-82	***B-***
77-79	***C+***
73-76	***C***
70-72	***C-***
67-69	***D+***
60-66	***D***
0-59	***F***

Academic Integrity:

All students are expected to follow the Rice Honor Code. Plagiarism will not be tolerated. All

cases of suspected plagiarism/cheating will be reported for investigation. If you have any questions about plagiarism, come speak with me. Students are encouraged to talk with each other about their assignments and read each other's drafts; however, the final product must be your own or your group's writing, with all words and ideas taken from others properly cited.

Laptops and other technology rules:
Students may use laptops, tablets, cell phones, or other technology in this course for class-related activities only. Texting, using Twitter, playing games, etc. interrupts the flow of discussion, distracts other students, and will inevitably embarrass you when I have to call you out. Students are prohibited from using headphones. You are in this class approximately 3 hours a week. Please be present and prepared when you are here. If you would rather text or surf the internet, please do not come to class.

Students with Disabilities or Special Needs:
Students who have disabilities or special needs should contact Disability Support Services to help procure accommodations in completing coursework. Speak with me about how the course can best fit your needs.

Title IX Responsible Employee Notification
Rice encourages any student who has experienced an incident of harassment, pregnancy discrimination or gender discrimination or relationship, sexual, or other forms interpersonal violence to seek support from The SAFE Office. At Rice University, unlawful discrimination in any form, including sexual misconduct, is prohibited under Rice Policy on Harassment and Sexual Harassment (Policy 830) and the Student Code of Conduct. As the instructor and a responsible employee, I am required by Title IX to disclose all incidents of non-consensual interpersonal behaviors to the Title IX Coordinator on campus. Although responsible employees are required to make this notification, it is the student's choice to pursue a formal complaint. The goal is to make sure that students are aware of the range of options available and have access to the resources when in need. For more information, please visit safe.rice.edu, titleix.rice.edu, or email titleixsupport@rice.edu.

Class Schedule:

Part 1) Introduction: What Are Data and Ethics?

Week 1: Introduction

1/25 – Course Introduction

1/27 – Ethical Frameworks

- Sheila Jasanoff, *The Ethics of Invention: Technology and the Human Future* (New York: W. W. Norton and Co, 2016), 1-30.

1/29 – Ethical Frameworks cont.

Week 2: Ethical Frameworks Continued

2/1 – Utilitarianism

- John Stuart Mill, "Utilitarianism," in Louis P. Pojman and Lewis Vaughn, eds. *The Moral Life: An Introductory Reader in Ethics and Literature*, 5th Edition (New York: Oxford University Press, 2014), 201-204.
- *Recommended: David Brink, "Mill's Moral and Political Philosophy", in The Stanford Encyclopedia of Philosophy, ed. Edward N. Zalta, Spring 2019 (Metaphysics Research Lab, Stanford University, 2019), https://plato.stanford.edu/archives/spr2019/entries/mill-moral-political/*

2/3 – Deontology

- Immanuel Kant, *Fundamental Principles of the Metaphysic of Morals*, First Section-Transition from The Common Rational Knowledge of Morality to the Philosophical, translated by T. K. Abbott, 1785, http://www.gutenberg.org/files/5682/5682-h/5682-h.htm#link2H_4_0002.
- *Recommended: Robert Johnson and Adam Cureton, "Kant's Moral Philosophy," in The Stanford Encyclopedia of Philosophy, ed. Edward N. Zalta, Spring 2019 (Metaphysics Research Lab, Stanford University, 2019), https://plato.stanford.edu/archives/spr2019/entries/kant-moral/*

2/5 – Virtue Ethics

- Aristotle, "Virtue Ethics," in Louis P. Pojman and Lewis Vaughn, eds. *The Moral Life: An Introductory Reader in Ethics and Literature*, 5th Edition (New York: Oxford University Press, 2014), 316-329.
- *Recommended: Rosalind Hursthouse and Glen Pettigrove, "Virtue Ethics", in The Stanford Encyclopedia of Philosophy, ed. Edward N. Zalta, Winter 2018 (Metaphysics Research Lab, Stanford University, 2018), https://plato.stanford.edu/archives/win2018/entries/ethics-virtue/*

Week 3: Ethical Frameworks Continued

2/8 – Case Study: "The Ones Who Walk Away from Omelas"

- Ursula K. Le Guin. "The Ones Who Walk Away from Omelas (Variations on a Theme by William James)." Utopian Studies 2.1/2 (1991): 1–5. https://onesearch.library.rice.edu/permalink/01RICE_INST/1ou2kn7/jstor_archive_820719019

2/10 – Working with Technology [ASYNCHRONOUS]

- ACM Code of Ethics and Professional Conduct, https://www.acm.org/code-of-ethics
- M. David Ermann and Michele S. Shauf, eds. *Computers, Ethics, and Society*, 3rd Edition (New York: Oxford University Press, 2003), 31-41.

2/12 – Data Science and Ethics

- Os Keyes, Jevan Hutson, and Meredith Durbin. "A Mulching Proposal: Analysing and Improving an Algorithmic System for Turning the Elderly into High-Nutrient Slurry." In *Extended Abstracts of the 2019 CHI Conference on Human Factors in Computing Systems*, alt06:1–alt06:11. CHI EA '19. New York, NY, USA: ACM, 2019. https://onesearch.library.rice.edu/permalink/01RICE_INST/1ou2kn7/proquest2276715994.

Part 2) Who Counts and Who Is Counted?

Week 4: Surveying and Citizenship

2/15 – Who Counts as a Citizen

- *Recommended: Dominique Leydet, "Citizenship", in The Stanford Encyclopedia of Philosophy, ed. Edward N. Zalta, Fall 2017 (Metaphysics Research Lab, Stanford University, 2017), https://plato.stanford.edu/archives/fall2017/entries/citizenship/*

*2/17 – **NO CLASS***

2/19 – The Rise of Statistics

- Sarah Elizabeth Igo, *The Averaged American: Surveys, Citizens, and the Making of a Mass Public* (Harvard University Press, 2007), 1-22.
- ****SHORT ESSAY #1 DUE ON CANVAS****

Week 5: Human Subject Research

2/22 – Case Study: Middletown: A Study in Contemporary American Culture

- Robert Staughton Lynd, and Helen Merrell Lynd. *Middletown, a Study in Contemporary American Culture*. New York: Harcourt, Brace and Company, 1929, selections.

2/24 – From Nazis to Polio

- *Recommended: Eyal, Nir, "Informed Consent", in The Stanford Encyclopedia of Philosophy, ed. Edward N. Zalta, Spring 2019 (Metaphysics Research Lab, Stanford University, 2019), https://plato.stanford.edu/archives/spr2019/entries/informed-consent/*

2/26 – Case Study: Tuskegee Syphilis Study

- Britt Rusert, "Naturalizing Coercion: The Tuskegee Experiments and the Laboratory Life of the Plantation," in *Captivating Technology: Race, Carceral Technoscience, and Liberatory Imagination in Everyday Life*, ed. Ruha Benjamin (Duke University Press, 2019), 25-49.

Part 3) How Is Data Resisted?

Week 6: Fighting Back Against Becoming Data
*3/1 – **NO CLASS***

3/3 – Reducing People to Numbers [ASYNCHRONOUS]

- Arthur R. Miller, *The Assault on Privacy* (Ann Arbor, MI: University of Michigan Press, 1971), 15-22.

3/5 – Punchcard Protests

- Steven Lubar, "'Do Not Fold, Spindle or Mutilate': A Cultural History of the Punch Card," *Journal of American Culture* 15, no. 4 (Winter 1992): 43–55. https://onesearch.library.rice.edu/permalink/01RICE_INST/1ou2kn7/proquest200642882

Part 4) Who Owns and Controls Data?

Week 7: Governmental Surveillance
3/8 – Legal and Illegal Surveillance

3/10 – Case Study: Edward Snowden and the NSA

- "Government Surveillance," *Last Week Tonight with John Oliver*, HBO, April 5, 2015, https://www.youtube.com/watch?v=XEVlyP4_11M

3/12 – Pushing Back on the Dark Web

- Ross Bellaby, "Going Dark: Anonymising Technology in Cyberspace," *Ethics and Information Technology* 20, no. 3 (2018): 189–204. https://onesearch.library.rice.edu/permalink/01RICE_INST/1ou2kn7/springer_jour10.1007%2Fs10676-018-9458-4

Week 8: Data Security and Hacking
3/15 – WarGames [ASYNCHRONOUS]

- Stephanie R. Schulte, *Cached: Decoding the Internet in Global Popular Culture*, United Kingdom: NYU Press, 2013, 21-54.
- Watch *WarGames*.
- ****GROUP PROJECT PAPER 1 DUE ON CANVAS****

3/17 – Hacking and WarGames Discussion.

3/19 – Security Breaches Today

- Taylor Armerding, "The 18 biggest data breaches of the 21st century," *CSO*, December 20, 2018, https://www.csoonline.com/article/2130877/the-biggest-data-breaches-of-the-21st-century.html
- Samuel D. Warren and Louis D. Brandeis, "The Right to Privacy," *Harvard Law Review* 4, no. 5 (Dec. 15, 1890): 193-220.

Week 9: Privacy of Personal Data

3/22 – Attention Economies and Privacy – Guest Lecture: Dr. Rodrigo Ferreira

- Kim Wetzel, "Amazon workers listening to Alexa recordings isn't a big deal. Here's why," *Digital Trends*, (April 12, 2019), https://www.digitaltrends.com/home/amazon-workers-listening-to-alexa-recordings/
- Michael McFarland, "Why We Care about Privacy," *Markkula Center for Applied Ethics*, (2012), https://www.scu.edu/ethics/focus-areas/internet-ethics/resources/why-we-care-about-privacy/
- Christian Fuchs, "Google: Good or Evil Search Engine?" in *Social Media: A Critical Introduction* (2017).

3/24 – The Semantic Web and Advertising

*3/26 – **NO CLASS***

Part 5) How Is Data Gathered and Used Today?

Week 10: Internet Companies and Smart homes

3/29 – The Right to Be Forgotten

- Meg Leta Jones, *Ctrl+Z: The Right to Be Forgotten* (New York University Press, 2016), Ch. 2, 55-80.

3/31 – Facebook

- Carole Cadwalladr and Emma Graham-Harrison, "Revealed: 50 Million Facebook Profiles Harvested for Cambridge Analytica in Major Data Breach," *The Guardian*, March 17, 2018, https://www.theguardian.com/news/2018/mar/17/cambridge-analytica-facebook-influence-us-election

4/2 – Search Engines [ASYNCHRONOUS]

- Safiya Umoja Noble, *Algorithms of Oppression: How Search Engines Reinforce Racism* (New York University Press, 2018), 64-109.
- ****SHORT ESSAY #2 DUE ON CANVAS****

Week 11: Biometrics and Bodies as Data

4/5 – Facial Recognition

- Joy Buolamwini and Timnit Gebru. "Gender Shades: Intersectional Accuracy Disparities in Commercial Gender Classification," *Proceedings of the 1st Conference on Fairness, Accountability and Transparency*, PMLR 81: 77-91, 2018.

4/7 – Case Study: CCTV in China

- Paul Mozur, "One Month, 500,000 Face Scans: How China Is Using A.I. to Profile a Minority," *The New York Times*, April 14, 2019, https://www.nytimes.com/2019/04/14/technology/china-surveillance-artificial-intelligence-racial-profiling.html

4/9 – Fingerprinting

- Shoshana Magnet, *When Biometrics Fail: Gender, Race, and the Technology of Identity* (Duke University Press, 2011), 69-89.

Week 12: Machine Learning

4/12 – Disability and AI

- Meredith Whittaker et al., "Disability, Bias, and AI." AI Now Institute, November 2019.

4/14 – The Creation and Circulation of Datasets [ASYNCHRONOUS]

- Joanna Radin, "Digital Natives: How Medical and Indigenous Histories Matter for Big Data," *Osiris* 32, no. 1 (2017): 43-64. https://onesearch.library.rice.edu/permalink/01RICE_INST/1ou2kn7/ucpj10.1086%2F693853.

4/16 – Autonomous Vehicles

- Jack Stilgoe. "Machine Learning, Social Learning and the Governance of Self-Driving Cars." *Social studies of science* 48, no. 1 (February 1, 2018): 25–56. https://onesearch.library.rice.edu/permalink/01RICE_INST/1ou2kn7/proquest1966982519.

Week 13: Algorithms and Bias

4/19 – Robots, Race and Gender

- Ruha Benjamin. *Race After Technology*. (Medford, MA: Polity Press, 2019), 49-76.

4/21 – Algorithms and Criminal Justice

- Rashida Richardson, Jason Schultz, and Kate Crawford. "Dirty Data, Bad Predictions: How Civil Rights Violations Impact Police Data, Predictive Policing Systems, and Justice." New York University Law Review Online, Forthcoming.

4/23 – Algorithms cont.

Part 6) Conclusion

Week 14: Team Presentations and Wrap-up

4/26 – Group Project Presentations

4/28 – Group Project Presentations

4/30 – Group Project Presentations

GROUP PROJECT PAPER 2 DUE AT SCHEDULED FINAL EXAM TIME, ON CANVAS