



DS 2004 | Data Ethics

Spring 2023

Thursday, 3:30-6:00 pm (in-person)

Location: Gilmer Hall 257

Dr. Jess Reia (they/them)

Elson, 400 Brandon Ave, Room 189B

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Office hours: Tuesday and Thursday 2:00-3:00 or by appointment.

TA: Kate Meldrum (she/her)

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Office Hour: Wednesday 1:00-2:00pm

Location: Dell 1 Lobby or Zoom if requested

Class Description

This course will explore principles and applications of data ethics within a broader social framework that prioritizes conversations about policy, regulatory frameworks, accountability, transparency, and governance models. Thinking as data scientists, we will discuss who is responsible for doing responsible data science, question how our work shapes the world around us, and understand the impacts of big data on people and communities.

Required Texts and Resources

All required readings and resources are available as links from this syllabus and will also be posted to Canvas and GitHub. In addition, all other materials will be posted to Canvas and/or available in our classroom.

Learning Outcomes

Upon successful completion of this course, students will be able to:

- Understand fundamental concepts, theories, policies, and controversies around data ethics.
- Think critically about the power dynamics embedded in data-centric systems that might cause or exacerbate harm, bias, discrimination, and disparities.

- Question the various impacts of Data Science on individuals and communities.
 - Acquire critical reading skills useful to comprehend scholarly papers, policy documents, legislation, and news articles.
 - Articulate, through presentations and writing, critical analyses regarding ethical issues related to Data Science.
 - Work in groups to learn together and solve problems.
 - Integrate components of ethics, responsibility, accountability, and justice into their everyday practice as data scientists.
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Inclusive Learning Environment

As the instructor of this course, I endeavor to provide an inclusive learning environment. Let me know if you have a name and/or set of pronouns that differ from those that appear in your official UVA records. My expectation is that we all contribute to an inclusive and respectful classroom culture that reflects the School of Data Science's commitment to being a space in which you can find true belonging and a sense of shared community. The diversity (referring to the multiple ways that we identify ourselves, including but not limited to race, color, national origin, language, sex, disability, age, sexual orientation, gender identity, religion, creed, ancestry, belief, veteran status, or genetic information) of our classroom is a strength. You are expected to respectfully embrace the opportunity to engage, collaborate, and learn with/from a diverse team of classmates.

If you feel like your performance in the class is being impacted by your experiences outside of class, please do not hesitate to come and talk to me. Sexual and gender-based harassment and other forms of interpersonal violence have no place in our community of trust and respect. Discrimination, including sexual and gender-based harassment and violence, on the basis of sex, sexual orientation, gender, and gender identity or expression is prohibited. If your experience is inconsistent with this expectation or you are in need of additional support, please consider reaching out to me directly or to our Associate Dean for DEI, Siri Russell (ssr5v@virginia.edu). You may also report to UVA's Office of Equal Opportunity and Civil Rights (EOCR) using the online tool: UVA Just Report It (<https://justreportit.sites.virginia.edu/>).

If you experience barriers to learning in this course, do not hesitate to discuss them with me and UVA's EOCR: <https://eocr.virginia.edu>. Any SDS student with a disability who needs accommodation (e.g., in arrangements for seating, extended time for examinations, or note-taking, etc.), should contact the Student Disability Access Center (SDAC) (434-243-5180) and follow up with me about logistics and implementation of accommodations. Further policies and statements are available at www.virginia.edu/studenthealth/sdac/sdac.html.

Class Instructions

We will learn as a community. Every week, we will work on offline assignments, and we will meet in person every Thursday 3:30-6:00 pm EST. Every class starts with a brief overview of the current topics related to data ethics and data science (news articles, reports, opportunities, events, etc.), followed by a recap of what was covered in the previous class, including the contributions submitted by you. Then I will present a high-level synthesis of the week's topic. In the remaining time, we will focus on discussing the topic collectively, sometimes using different tools or platforms that will be available to you beforehand, and to figuring out solutions, controversies or even asking more questions together. Occasionally, we will host guest speakers and engage with specialists of certain topics. Then, we will have final presentations of your projects and debrief what we learned together, evaluate the experience, and think about our interests in data ethics moving forward in the last three weeks of the course. See the following information and schedule for more details.

Communication & Student Response Time

I strive to create a place to connect with you because I know communication is essential for your success in this class (and in life). You can always reach me at reia@virginia.edu and expect responses within 48 hours of receipt, except under unpredictable circumstances. At UVA, students are expected to check their official UVA email addresses on a frequent and consistent basis to remain informed of University communications, as certain communications may be time-sensitive. Please come to my office hours or, if you cannot make it to the office hours, send me an email to set up an appointment or just come by and hang out if you'd like. Let me know how I can help you do your best work.

Activities, Requirements, and Assignments

Attendance and participation (15%): We learn better together, so regular attendance is expected. The principal purpose of this mark is to provide incentives for active participation in class. The quality of participation is as important as the quantity. I expect you to be present and actively engage in our classroom as much as possible, whether during lectures, group discussion, or other in-class activities. **People learn differently and have different approaches for participating in class, so I want you to engage constructively, respectfully, and generously with the ideas of your classmates and the readings.** Please come to class prepared and use inclusive language. The pandemic is still exacerbating inequalities and making life difficult in many places. If you are facing any issues that are impacting your performance in this course, please reach out to me.

Weekly comments (20%): For each week's class, beginning in Week 2, you are required to **choose one or more of the readings and write a short paragraph (around 100 words) highlighting what, for you, are the most exciting or relevant ideas or concepts in the reading(s).** You are invited to engage with the readings in an argumentative fashion and to provide links and references to other interesting materials. **These paragraphs should be posted to Canvas under the specific Weekly comment assignment by 11 pm each Wednesday before the next day's class.** Your contributions will be occasionally selected to be placed in PowerPoint slides and debated with the class. You are required to do at least **eight** of these exercises during the term (**weeks 2-11**), which means you can skip one of the weeks at your convenience. There is no right or wrong answer; you will be graded based on the number of responses, respect to our inclusive learning environment, and fulfillment of the requirements explained above.

Group presentation of an ethical dilemma (35%): The purpose of this assignment is to work collaboratively, in small groups, to **present the analysis of an ethical dilemma discussed in this course.** You can bring resources and examples from anywhere in the world; I encourage you to use policy documents, laws, news articles, platforms, government reports, books, peer-reviewed papers, exhibitions, art installations, documentaries, etc. There are plenty of problematic resources about data ethics, please choose wisely. If you are unsure about the reliability of a resource, reach out to me. This exercise will be undertaken in groups of 5 students. **We will decide the composition of your group in our first class, and you need to share your chosen topic with me by week 5.** The main outcome of this assignment is a 15-minute presentation for the class, followed by Q&A. The presentation materials should be uploaded to Canvas after you have presented and no later than **April 21, 2023**. I will provide guidelines for the presentation that will be available on Canvas.

Final short essay (30%): All students are required to submit a **final short essay (600-800 words)** that draws from our in-class conversations, readings and/or other assignments to analyze and/or propose a response to **one specific ethical dilemma** of your choice **and engage with at least three readings of our syllabus.** References, sources and citations **must** be provided. **You are encouraged to do something related to your**

experience and/or interests in data science, such as capstones, coursework, past or current job experience, consultancy, academic interests, future perspectives, etc. You should create it individually and submit it via Canvas under the Final essay assignment **by May 2, 2023**. A template for the essay will be provided to guide and facilitate your work.

All assignments, templates, due dates, and additional information will be available on Canvas and discussed during our live sessions.

Generative AI

New artificial intelligence (AI) tools, like ChatGPT, are capable of automating tasks related to learning processes both quickly and relatively accurately. For example, they can help you brainstorm ideas for papers, draft outlines, generate rough essays, analyze texts, and even write computer code. While the tools can be useful aids, they are no substitute for the types of knowledge you'll need to gain or skills you'll need to develop in this course. In fact, the tools themselves often provide very shallow information that is factually incorrect. At times I may encourage you to use these tools and at other times you might use them on your own. Regardless of the situation, you should clearly indicate on assignments when and how you used the tools, the prompts you used to generate output, how you fact-checked the output, and the revision process you employed to generate your final work.

Grading Scale

Courses carrying a Data Science subject area use the following grading system: A, A-; B+, B, B-; C+, C, C-; D+, D, D-; F. You will be graded according to the following markings:

Points	Grade
93-100	A
90-92	A-
87-89	B+
83-86	B
80-82	B-
77-79	C+
73-76	C
70-72	C-
<70	F

Academic Integrity

The School of Data Science relies upon and cherishes its community of trust. And I trust you to follow UVA's Honor Code (<http://www.virginia.edu/honor/overview/>), to be honest with your classmates and the instructor. Each assignment will describe allowed collaborations, and deviations from these will be considered Honor violations. If you have questions on what is allowable, ask me. Collaboration is valuable and encouraged but doing each other's work does not lead to proper learning. Acting in a manner consistent with the principles of honor will benefit every community member both while enrolled in the School of Data Science and in the future. Students are expected to be familiar with the university honor code, including the section on academic fraud (<https://honor.virginia.edu/academic-fraud>) and plagiarism (<https://honor.virginia.edu/plagiarism-supplement>).

Late work policy

Life is unpredictable, and we are still dealing with the many consequences of a pandemic. Sometimes, we cannot meet our deadlines for various reasons. Having this in mind, I will accept **your final essay** up to *three days* after the deadline with a -10 points penalty – no questions asked. After that, exceptional situations will be discussed on a case-by-case basis.

Class Schedule

Week 1 Thu., Jan. 19	Course overview & Introduction to data ethics
Description	We will review the syllabus together to ensure everyone is on the same page. Then, I will respond to your questions about the course, the syllabus, the resources we will use, our assignments and grading/marketing. Following the presentation of the course, we will briefly discuss data ethics and work collectively on our interests, expectations, and perceptions of the topic. We will have time to know a bit more about each other and choose your topics for the case studies. There are no mandatory readings for this first day of our course.
Week 2 Thu., Jan. 26	Counting things and (un)official numbers
Description	In this class, we will discuss different concepts of and understandings around data collection, official numbers, and what we often render (in)visible in datasets. You are required to carefully <u>read one</u> of the resources listed under “Required readings” – feel free to choose your favourite. You can also explore the optional readings to prepare for our in-class debates and the weekly comments.
Readings	<ul style="list-style-type: none">• Required readings: Davis, S. (2020). <i>The Uncounted: Politics of Data in Global Health</i> (Cambridge Studies in Law and Society). Cambridge: Cambridge University Press. [The book chapter will be available on Canvas] Martin, A., & Lynch, M. (2009). Counting Things and Counting People: The Practices and Politics of Counting, <i>Social Problems</i> 56, 2, p. 243-266. https://sites.tufts.edu/models/files/2019/03/martin-lynch-counting.pdf• If you want to learn more: Bouk, D. (2022). <i>Democracy's Data: The Hidden Stories in the U.S. Census and How to Read Them</i>. New York: MCD. [The book chapter will be available on Canvas] Guyan, K. (2022). <i>Queer Data: Using Gender, Sex and Sexuality Data for Action</i>. London and New York: Bloomsbury. [The book chapter will be available on Canvas]

Assignments	Weekly comment
Week 3 Thu., Feb. 2	Data as: object, asset, power
Description	We will learn about how our perceptions of data changed over time, as well as the understanding of data's social implications. You are required to carefully <u>read one</u> of the resources listed under "Required readings" – feel free to choose your favourite. You can also explore the optional readings to prepare for our in-class debates and the weekly comments.
Readings	<ul style="list-style-type: none"> Required readings: <p>Leonelli, S. (2019). Data - from Objects to Assets. <i>Nature</i> 574 (7778): 317–20. https://doi.org/10.1038/d41586-019-03062-w</p> <p>Birch, K., Cochrane, D., & Ward, C. (2021). Data as asset? The measurement, governance, and valuation of digital personal data by Big Tech. <i>Big Data & Society</i>. https://doi.org/10.1177/20539517211017308</p> <ul style="list-style-type: none"> If you want to learn more: <p>D'Ignazio, C., & Klein, L. F. (2020). <i>Data Feminism</i>. Cambridge and London: the MIT Press. [Chapter 6] https://assets.pubpub.org/iu3xmxc/4d388a2f-318e-4c78-8474-d0d2582fec37.pdf</p> <p>Dryer, T. (2019). <i>Designing Certainty: The Rise of Algorithmic Computing in an Age of Anxiety 1920 – 1970</i>. PhD Dissertation, UC San Diego. https://escholarship.org/uc/item/4d02g6x3</p>
Assignments	Weekly comment
Week 4 Thu., Feb. 9	Datafication of everything and ethical dilemmas
Description	This class focuses on the roles of data in society, as well emerging and historical ethical dilemmas that we need to consider as data scientists. You are required to carefully <u>read one</u> of the resources listed under "Required readings" – feel free to choose your favourite. You can also explore the optional readings to prepare for our in-class debates and the weekly comments.
Readings	<ul style="list-style-type: none"> Required readings <p>Kitchin, R. (2014). <i>The Data Revolution: Big Data, Open Data, Data Infrastructures, and Their Consequences</i>. London: SAGE Publications Ltd. [The book chapter will be available on Canvas]</p> <p>Johnson, D. G. (2020). <i>Engineering Ethics</i>. New Haven, CT: Yale University Press. [The book chapter will be available on Canvas]</p>

	<ul style="list-style-type: none"> If you want to learn more: <p>Bietti, E. (2020). From ethics washing to ethics bashing: a view on tech ethics from within moral philosophy. <i>Proceedings of the 2020 Conference on Fairness, Accountability, and Transparency (FAT* '20)</i>. Association for Computing Machinery, New York, NY, USA, p. 210–219. https://dl.acm.org/doi/abs/10.1145/3351095.3372860</p> <p>Wylie, C. D. (2020). Who Should Do Data Ethics?. <i>Patterns</i>, Volume 1, Issue 1. https://doi.org/10.1016/j.patter.2020.100015</p>
Assignments	Weekly comment
Week 5 Thu., Feb. 16	Fairness and Explainability
Description	We will explore multiple approaches to the concepts of fairness and explainability in data science. You are required to carefully <u>read one</u> of the resources listed under “Required readings” – feel free to choose your favourite. You can also explore the optional readings to prepare for our in-class debates and the weekly comments.
Readings	<ul style="list-style-type: none"> Required readings <p>Dwork, C., & Minow, M. (2022). Distrust of Artificial Intelligence: Sources & Responses from Computer Science & Law. <i>Daedalus</i> 2022; 151 (2), p. 309–321. https://doi.org/10.1162/daed_a_01918</p> <p>Zarsky, T. (2016). The Trouble with Algorithmic Decisions: An Analytic Road Map to Examine Efficiency and Fairness in Automated and Opaque Decision Making. <i>Science, Technology, & Human Values</i>, 41(1), 118–132. https://doi.org/10.1177/0162243915605575</p> <ul style="list-style-type: none"> If you want to learn more: <p>Hoffmann, A. L. (2019). Where Fairness Fails: Data, Algorithms, and the Limits of Antidiscrimination Discourse. <i>Information, Communication & Society</i>, v. 22, n. 7, p. 900–915. https://doi.org/10.1080/1369118X.2019.1573912</p> <p>Raji, I. D., Gebru, T., Mitchell, M., Buolamwini, J., Lee, J., & Denton, E. (2020). Saving Face: Investigating the Ethical Concerns of Facial Recognition Auditing. <i>AIES '20: Proceedings of the AAAI/ACM Conference on AI, Ethics, and Society</i>. https://dl.acm.org/doi/abs/10.1145/3375627.3375820</p>
Assignments	<p>Weekly comment</p> <p>Your group should have chosen the topic you will be presenting about by this date.</p>
Week 6	Transparency and Accountability

Thu., Feb. 23	
Description	<p>Building upon last week's discussion, we will explore multiple approaches to the concepts of transparency and accountability in data science. You are required to carefully <u>read one</u> of the resources listed under "Required readings" – feel free to choose your favourite. You can also explore the optional readings to prepare for our in-class debates and the weekly comments.</p>
Readings	<ul style="list-style-type: none"> • Required readings <p>Ananny, M., & Crawford, K. (2018). Seeing without knowing: Limitations of the transparency ideal and its application to algorithmic accountability. <i>New Media & Society</i>, 20(3), 973–989. <u>https://doi.org/10.1177/1461444816676645</u>.</p> <p>Costanza-Chock, S., Raji, I. D., & Buolamwini, J. (2022). Who audits the auditors? recommendations from a field scan of the algorithmic auditing ecosystem. In 2022 ACM Conference on Fairness, Accountability, and Transparency FAccT '22 (p. 1571–1583). New York, NY, USA: Association for Computing Machinery. <u>https://doi.org/10.1145/3531146.3533213</u></p> <ul style="list-style-type: none"> • If you want to learn more: <p>Eubanks, V. (2018). <i>Automating Inequality: How High-Tech Tools Profile, Police and Punish the Poor</i>. St. Martin's Press. [The book chapter will be available on Canvas]</p> <p>Shenkman, C., Franklin, S.B., Nojeim, G., & Thakur, D. (2021) <i>Legal Loopholes and Data for Dollars: How Law Enforcement and Intelligence Agencies Are Buying Your Data from Brokers</i>. Center for Democracy & Technology. <u>https://cdt.org/wp-content/uploads/2021/12/2021-12-08-Legal-Loopholes-and-Data-for-Dollars-Report-final.pdf</u></p>
Assignments	Weekly comment
Week 7 Thu., Mar. 2	Digital Rights
Description	<p>In this class, we will cover digital rights and notions of human rights in a digital context, from privacy to the right to access the internet. You are required to carefully <u>read one</u> of the resources listed under "Required readings" – feel free to choose your favourite. You can also explore the optional readings to prepare for our in-class debates and the weekly comments.</p>
Readings	<ul style="list-style-type: none"> • Required readings <p>Véliz, C. (2020). Not the Doctor's Business: Privacy, Personal Responsibility and Data Rights in Medical Settings. <i>Bioethics</i>, Vol. 34, Issue 7, pp. 712-718, 2020, Available at SSRN: <u>https://ssrn.com/abstract=3712311</u></p>

	<p>Carroll, S.R., Garba, I., Figueroa-Rodríguez, O.L., Holbrook, J., Lovett, R., Materechera, S., Parsons, M., Raseroka, K., Rodriguez-Lonebear, D., Rowe, R., Sara, R., Walker, J.D., Anderson, J. & Hudson, M., (2020) The CARE Principles for Indigenous Data Governance. <i>Data Science Journal</i>, 19(1): 43. https://datascience.codata.org/articles/10.5334/dsj-2020-043/</p> <ul style="list-style-type: none"> • If you want to learn more: <p>Citron, D. K., & Solove, D. J. (2021). Privacy Harms. GWU Legal Studies Research Paper No. 2021-11, GWU Law School Public Law Research Paper No. 2021-11, 102 Boston University Law Review 793 (2022). http://dx.doi.org/10.2139/ssrn.3782222</p> <p>Reventlow, N. (2017). <i>Digital rights are human rights</i>. Digital Freedom Fund. Available at: https://digitalfreedomfund.org/digital-rights-are-human-rights/.</p>
Assignments	Weekly comment
Week 8 Thu., Mar. 9	Spring recess
	No class today
Week 9 Thu., Mar. 16	Addressing bias, harm, and discrimination
Description	This class focuses on a broader social framework of impacts caused by data-centric systems and projects: we will talk about bias, harm and discrimination. You are required to carefully <u>read one</u> of the resources listed under “Required readings” – feel free to choose your favourite. You can also explore the optional readings to prepare for our in-class debates and the weekly comments.
Readings	<ul style="list-style-type: none"> • Required readings: <p>Chun, W. H. K. (2021). <i>Discriminating Data: Correlation, Neighborhoods, and the New Politics of Recognition</i>. Cambridge, MA: The MIT Press. [The book chapter will be available on Canvas]</p> <p>Claypool, H., Carey, C., Hart, A. C., & Lassiter, L. (2021). <i>Centering Disability in Technology Policy: Issue Landscape and Potential Opportunities for Action</i>. https://cdt.org/wp-content/uploads/2021/12/centering-disability-120821-1326-final.pdf</p> <ul style="list-style-type: none"> • If you want to learn more: <p>Beauchamp, T. (2019) <i>Going Stealth: Transgender Politics and U.S. Surveillance Practices</i>. Durham and London: Duke University Press. [The book chapter will be available on Canvas]</p> <p>Noble, S. U. (2018). <i>Algorithms of oppression: How search engines reinforce racism</i>. New York University Press. [The book chapter will be available on Canvas]</p>

Assignments	Weekly comment
Week 10 Thu., Mar. 23	Meaningful engagement with data
Description	<p>Following last week's conversation about the implications of data science, we will engage with readings and examples that show us alternatives and potential solutions. You are required to carefully <u>read one</u> of the resources listed under "Required readings" – feel free to choose your favourite. You can also explore the optional readings to prepare for our in-class debates and the weekly comments.</p>
Readings	<ul style="list-style-type: none"> • Required readings <p>Taylor, L. (2017). What is data justice? The case for connecting digital rights and freedoms globally. <i>Big Data & Society</i>, 4(2). https://doi.org/10.1177/2053951717736335</p> <p>Ada Lovelace Institute. (2021). <i>Participatory data stewardship: A framework for involving people in the use of data</i>. https://www.adalovelaceinstitute.org/report/participatory-data-stewardship/</p> <ul style="list-style-type: none"> • If you want to learn more: <p>Dencik, L. & Sanchez-Monedero, J. (2022). Data justice. <i>Internet Policy Review</i>, 11(1). https://doi.org/10.14763/2022.1.1615</p> <p>Brandusescu, A., & Reia, J. (Eds.). (2022). <i>Artificial Intelligence in the City: Building Civic Engagement and Public Trust</i>. Centre for Interdisciplinary Research on Montreal, McGill University. [choose one or two essays] https://doi.org/10.18130/9kar-xn17</p>
Assignments	Weekly comment
Week 11 Thu., Mar. 30	Data ethics for responsible data scientists
Description	<p>This is our last class of discussion based on readings, and we will talk about the present and future of responsible data science. You are required to carefully <u>read one</u> of the resources listed under "Required readings" – feel free to choose your favourite. You can also explore the optional readings to prepare for our in-class debates and the weekly comments.</p>
Readings	<ul style="list-style-type: none"> • Required readings <p>Leonelli, S. (2019). Data Governance Is Key to Interpretation: Reconceptualizing Data in Data Science. <i>Harvard Data Science Review</i>, 1–9. https://doi.org/10.1162/99608f92.17405bb6</p>

	<p>Raji I. D. (2020). Handle with Care: Lessons for Data Science from Black Female Scholars. <i>Patterns</i>, 1(8). https://doi.org/10.1016/j.patter.2020.100150</p> <ul style="list-style-type: none"> • If you want to learn more: <p>Birhane, A. (2021). Algorithmic injustice: a relational ethics approach. Patterns, Volume 2, Issue 2. https://doi.org/10.1016/j.patter.2021.100205</p> <p>Reia, J. (2022). <i>Request for Information (RFI) on the Federal Evidence Agenda on LGBTQI+ Equity</i> (87 FR 52083) submitted to the White House Office of Science and Technology Policy (OSTP). October 3. Available at: https://api.dsi.virginia.edu/sites/default/files/attachments/2022-10/SDS-UVA_RFI%20WHOSTP%20LGBTQI%2B%20Equity_Reia.pdf</p>
Assignments	Weekly comment
Week 12 Thu., Apr. 6	Group presentation (day 1)
Description & Assignments	<p>Group presentation: topics will be available after week 5.</p> <p>Ask questions and engage with your colleagues.</p>
Week 13 Thu., Apr. 13	Group presentation (day 2)
Description & Assignments	<p>Group presentation: topics will be available after week 5.</p> <p>Ask questions and engage with your colleagues.</p>
Week 14 Thu., Apr. 20	Group presentation (day 3)
Description & Assignments	<p>Group presentation: topics will be available after week 5.</p> <p>Ask questions and engage with your colleagues.</p>
Week 15 Thu., Apr. 27	Course wrap-up (online)
Description & Assignments	<p>Course wrap-up will most likely be online due to the United Nations World Data Forum in China. We will gather online to discuss the course and its outcomes and work on an activity to provide and receive feedback. I will answer any lingering questions about the final essays and grading.</p> <p>Submit your final essay by May 2.</p>