IST 497-002
DATA ETHICS

Spring 2020
T/TH 3:05-4:20PM
Room: EES 119

PROFESSOR
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Office Hours: Tu, Wed 11-12, and by appt

DESCRIPTION
In this course, we will explore social and ethical dimensions of data science. Datafication can be a powerful force for good, but it can also do enormous harm—to individuals and society. Drawing primarily from case studies, we will investigate when, why, and how data is collected, analyzed, and used, and we will ask what the ethical stakes are of these data-driven systems. In addition to diagnosing ethical problems—e.g., invasions of privacy, algorithmic bias, and lack of transparency and accountability—students will be asked to think creatively and constructively about how the tools of information science can be used to realize our shared ethical and social commitments.

GOALS & OBJECTIVES
The central aim of this course is twofold: (1) to help you develop an awareness of and sensitivity to ethical issues in the design and implementation of information technologies, and (2) to provide you with a set of conceptual tools that will enable you to evaluate and articulate those issues with precision. Upon successful completion of this course, you will be able to:
1. Identify and describe ethical issues in the design and implementation of information technologies;
2. Critically evaluate all stages of the data lifecycle, from data collection and storage to data analysis and use;
3. Propose constructive solutions to data ethics problems;
4. Formulate arguments and counter-arguments in support of your views.

TEXTS
All texts are accessible for free online—either at the URLs listed below or through the course Canvas site. You are not required to purchase any books for this course.

ASSIGNMENTS
This course involves a lot of reading, writing, and discussing ideas. Before each class, I expect you to read the assigned reading(s). It wouldn't be a bad idea to read them twice. I *don't* expect you to understand everything you read—that understanding will come from discussing and writing about the texts in class—but I do expect you to be familiar with them. *Take notes*. Underline parts that pique your interest; bracket parts you don't understand. Look up words you've never heard before. Write down questions that come up as you read, and bring the questions with you to class.

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In addition to reading each day's assigned texts and discussing them in class, you will be expected to complete the following assignments:

Short Written Work
This class is not just about reading texts and regurgitating ideas; it's about developing a critical orientation toward and ethical sensitivity to the design of information technology. That will not happen by listening to me lecture. You have to think, write, and talk about these issues in order to understand and internalize them. To that end, this class will involve a lot of opportunities for student participation. In addition to reading the assigned texts, asking thoughtful questions, offering your own arguments and analysis, and listening carefully to me and your classmate's challenges, we will engage in a variety of individual written exercises, in-class group work, occasional homework assignments, "lab" exercises, and sporadic quizzes. Unless otherwise specified, all written work must be submitted during the class it's assigned. (For information about what to do if you miss in-class work, see the "Attendance" section, below.)

Case Studies
While the issues we discuss will sometimes feel abstract, the aim of this course is to guide concrete, practical work. For that reason, your primary assessments will come in the form of detailed case studies. At the end of each major unit in the course you will demonstrate fluency with the concepts discussed in the preceding weeks by writing a 1000-1500 word paper that utilizes them to analyze a concrete case. I will provide information about the case and an analytical framework for exploring it two weeks prior to the assignment due date. You will submit your completed case studies through Canvas before midnight on the due dates listed in the course schedule below. I will deduct one letter grade from late submissions, and continue to deduct an additional letter grade each 24 hours after the initial deadline.

GRADING
Short Written Work: 20%
Case Studies: 20% x 4

Grading scale: A (93-100), A- (90-92), B+ (87-89), B (83-86), B- (80-82), C+ (77-79) … F (<60)

EXTRA CREDIT
There is *one and only one* extra credit opportunity in this course: you can attend Virginia Eubanks's Rock Ethics Institute Lippin Lecture on April 2nd at 6PM in the HUB and complete a short follow-up assignment. (If you have an irresolvable scheduling conflict, there is an alternative assignment you can complete.)

ATTENDANCE
Again, this is the kind of class where you learn by doing—by reading, asking questions, discussing ideas with your classmates, challenging me and being challenged. In order to succeed you have to attend class. While I will not track attendance formally, we will frequently do graded short written work during class. To get credit for missed in-class work, you have two options: either (1) write a critical summary of the assigned reading(s) you missed; or (2) find a (non-pay-walled) news story about a case that is relevant to the previous week's themes, and drawing from our readings and class

discussions, write a short analysis explaining or exploring it. Either kind of submission must be at least 400 words, and to get credit it must be submitted *before midnight on the Sunday following your absence.* I don't want to know why you missed class. Life is complicated and things come up—I recommend saving your allowed absences for such occasions.

EMAIL POLICY

I encourage you to email me with any questions or concerns you have about the course or your work in it. However, I am not on call 24 hours/day: I will respond to emails Monday-Friday, 9am-5pm. If you email me at night or on the weekend, do not expect an immediate response. Furthermore, I will not respond to emails if (1) they do not contain a salutation (e.g., "Hi Dr. Susser,…" or "Dear Prof. Susser,…") or (2) the answer to your question is contained in this syllabus or on Canvas. You're an adult! I expect you to send professional correspondence that doesn't look like a text message, and I expect you to have the wherewithal to look for answers first before asking me.

SCREENS POLICY

Unless you absolutely need it, *nothing with a screen is allowed in class.* That includes laptops, tablets, and cell phones. (If you do need to use something with a screen, please discuss it with me in advance.) This might sound like a bizarre policy for a course in the College of Information Sciences and Technology, but research shows that screens in classrooms are distracting—causing not only the students using the devices, but also those around them, to perform worse in the class. Like taking notes on your computer? Try paper and pen this semester: research shows that taking notes by hand is far more beneficial, cognitively, to the note-taker than typing them is. The first time I see you with a screen out in class I'll give you a warning. The second time I'll deduct 3 points from your final grade.

ACADEMIC INTEGRITY

College is stressful. Sometimes we take on too much or otherwise get in over our heads. If you feel overwhelmed or think you might not be able to meet my expectations in this course, please come discuss it with me—I'm 100% sure we can sort it out. If, however, you choose to go the other route, and I discover that you have cheated, plagiarized, or engaged in any other form of academic dishonesty, I will report it to the university immediately and recommend that you fail the course. If you aren't sure whether something counts as plagiarism, please ask!

ACCOMMODATING DISABILITIES

I am committed to *all* students succeeding in this course, and I will do whatever I can (within reason) to ensure that you do. If you have any kind of disability, visible or invisible, learning, emotional, physical, or cognitive, and you need accommodations or alternatives to lectures or other assignments, please contact me—preferably during the first week of class. (Though if something comes up later that you didn't anticipate, you can of course get in touch with me then.) For a variety of reasons it is also wise to formally document your disability with Student Disability Resources in the Office of the Vice Provost for Educational Equity. More information at http://equity.psu.edu/student-disability-resources/

COUNSELING AND PSYCHOLOGICAL SERVICES

It is very common for students to face personal challenges or have psychological needs that interfere with their academic progress or general wellbeing. Please do not try to overcome those challenges on your own! The university offers a variety of confidential services to help you through difficult times, including individual and group counseling, crisis intervention, consultations, online chats, and mental health screenings. These services are provided by staff who welcome all students and embrace a philosophy respectful of clients' cultural and religious backgrounds, and sensitive to differences in race, ability, gender identity and sexual orientation. You can reach University Park CAPS by phone at (814) 863-0395 or online at http://studentaffairs.psu.edu/counseling/

Penn State also has a 24/7 Crisis Phone Line, which you can reach at (877) 229-6400, and a Crisis Text Line, which you can reach by texting LIONS to 741741.

REPORTING BIAS

I take bias and discrimination very seriously, as does the university. If you believe you have experienced or observed a hate crime, an act of intolerance, discrimination, or harassment, I encourage you to come speak with me immediately and/or to report it to the university. More information at http://equity.psu.edu/reportbias/

COURSE SCHEDULE

The schedule below is an *ideal, approximate*, and therefore *tentative* sketch of things to come. I will adjust it as we go along, in accordance with how slowly or quickly we move through the material. It is your responsibility to come to class and to read the emails I send out in order to keep up with those changes.

Please note: Readings are listed on the day they will be discussed. For example, on January 16th we will discuss the Leo Marx essay.

INTRODUCTION: VALUES IN TECHNOLOGY

T 1/14   Introductions

Th 1/16   What Are We Building Toward?

Read: Leo Marx, "Does Improved Technology Mean Progress?"

T 1/21   Technology's Values 1

Read: Langdon Winner, "Do Artifacts Have Politics?" (p. 668-673)
Read: Kim Tallbear, "Can DNA Determine Who is American Indian?"
Watch: Cathy O'Neil, "The Truth About Algorithms"

Th 1/23   *Technology's Values 2*

Read: Langdon Winner, "Do Artifacts Have Politics?" (p. 673-678)
Read: Woodrow Harzog and Evan Selinger, "Facial Recognition is the Perfect Tool for Oppression"

T 1/28   *Ethical Values 1: Welfare*

Read: Michael Sandel, "The Greatest Happiness Principle" (pp. 31-46)

Th 1/30   *Ethical Values 2: Autonomy*

Read: Michael Sandel, "What Matters is the Motive" (pp. 103-111)
Read: Noam Scheiber, "How Uber Uses Psychological Tricks to Push Its Drivers' Buttons"

T 2/4   *Ethical Values 3: Equality*

Read: Michael Sandel, "The Case for Equality" (pp. 141-153)
Read: Alvaro Bedoya, "Big Data and the Underground Railroad"

Th 2/6   *Ethics Lab*

Read: Emma Goldberg, "'Techlash' Hits College Campuses"
Case Study 1 Due Friday 2/14

IS PRIVACY DEAD?

T 2/11   *Privacy? What? Why?*

Read and watch: New York Times Editorial Board, "Total Surveillance is Not What America Signed Up For"

Th 2/13   *Ethics of Collection 1: Control Over Personal Information*

Skim: Irwin Altman, "Privacy: Definitions and Properties" (esp. pp. 10-21)
Skim: Daniel Solove, "Privacy Self-Management and the Consent Dilemma" (pp. 1880-1893)

T 2/18   *Ethics of Collection 2: Respect for Context*

Read: Helen Nissenbaum, "A Contextual Approach to Privacy Online" (pp. 38-45)

Th 2/20   *Privacy Lab 1*

Read: Drew Harwell, "Colleges Are Turning Students' Phones into Surveillance Machines, Tracking the Locations of Hundreds of Thousands"
Read: Kathryn Miles, "Should Colleges Really Be Putting Smart Speakers in Dorms?"

T 2/25   ***Ethics of Use 1: Anonymization and Its Limits***

Read: Michael Kearns and Aaron Roth, "Algorithmic Privacy" (pp. 22-31)

Th 2/27   ***Ethics of Use 2: Differential Privacy***

Read: Michael Kearns and Aaron Roth, "Algorithmic Privacy" (pp. 31-56)

T 3/3   ***Privacy Lab 2***

No reading

Th 3/5   ***No class***

Case Study 2 Due Friday 3/6

T 3/10   ***Spring Break***

Th 3/12   ***Spring Break***

IS AUTOMATED DECISION-MAKING FAIR?

T 3/17   ***Risks of Prediction***

Read: Rob Kitchin, "You're Entitled to What the Data Says You Deserve"

Th 3/19   ***Old School Computer Bias***

Read: Batya Friedman and Helen Nissenbaum, "Bias in Computer Systems" (pp. 330-336)

T 3/24   ***Bias in Learning Systems***

Watch: Google, "Machine Learning and Human Bias"
Watch: Joy Buolamwini, "How I'm Fighting Bias in Algorithms"

Th 3/26   ***Defining Fairness***

Optional: Arvind Narayanan, "Tutorial: 21 Fairness Definitions and Their Politics"

T 3/31   ***Fairness Lab 1***

No reading

Th 4/2   ***Guest Lecture: Virginia Eubanks***

Reading TBD
Extra credit opportunity: Attend Prof. Eubanks's Rock Ethics Institute Lippin Lecture at 6PM in the HUB (follow-up assignment also required)

T 4/7   ***Looking Beyond the Machine***

Read: Andrew Selbst, danah boyd, Sorelle Friedler, Suresh Venkatasubramanian, and Janet Vertesi, "Fairness and Abstraction in Sociotechnical Systems" (pp. 1-8)

Th 4/9   ***Fairness Lab 2***

Read: Eric Baumer and Six Silberman, "When the Implication Is Not to Design (Technology)"
Case Study 3 Due Sunday 4/12

CAN MACHINES BE GOVERNED?

T 4/14   ***First Wave Algorithmic Accountability***

Read: Nicholas Diakopoulos and Sorelle Frielder, "How to Hold Algorithms Accountable"
Skim: "Principles for Accountable Algorithms and a Social Impact Statement for Algorithms"

Th 4/16   ***Barriers to Accountability***

Read: Jenna Burrell, "How the Machine 'Thinks': Understanding Opacity in Machine Learning Algorithms"

T 4/21   ***Toward Interpretability***

Read: Zachary Lipton, "The Mythos of Model Interpretability"

Th 4/23   ***Accountability for/to Whom?***

Read: Annette Zimmermann, Elena Di Rosa, and Hochan Kim, "Technology Can't Fix Algorithmic Injustice"
Read: Frank Pasquale, "Odd Numbers"

T 4/28   ***Accountability Lab***

No reading

Th 4/30   ***Final class/Wrap-up***

Case Study 4 Due 5/3