

**APSTA-2062 Ethics of Data Science, Spring 2023**  
New York University  
Syllabus, as of 2/6/2023

Wednesday 4:55 PM - 6:55 PM; 12 Waverly, Rm 114

**Wed April 19 2023** We have an important assignment with special guests scheduled.

**Adjustments to the syllabus may be made to accommodate guest speakers.**

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### Topics:

- Human Rights / Dignity and Autonomy
- Human Subjects Research / Informed consent
- External Validity / Accountability
- Classification, Fairness, Interpretation
- Moral Philosophy of Kant, Bentham, Aristotle, Gilliam, Rousseau
- Case studies: Gender, Google Flu Trends, Facebook Emotional Contagion, Microsoft Tay, COMPAS risk assessment, Cambridge Analytica,

### Learning Outcomes:

- Critically evaluate projects involving digital representations of human behavior
- Identify competing interests in the data supply chain
- Analyze the interdependence of values, data, & operational processes
- Demonstrate familiarity with theoretical models of ethics
- Give compelling oral presentations

### Classroom Tools:

- NYU Brightspace
  - NYU Google Apps
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### Overview:

“Ethics of Data Science” explores the societal consequences of extracting inferences about human behavior from digital abstractions. Historical and theoretical perspectives will serve as the foundation for exploring contemporary concerns about data science, predictive analytics, artificial intelligence, and other data-driven tools. The course is designed to build students’ ethical imaginations and data literacy using both inductive and deductive reasoning. The course provides practical guidance on how to uncover ethical weaknesses as well as construct principled data-driven projects.

### Book:

This suggested book is strongly encouraged to provide background if you are not familiar with this topic. Page numbers will be from the 2018, 5th edition.

- Baase, S., & Henry, T. (2018). A gift of fire social, legal, and ethical issues for computing technology (5th ed.). ISBN: 978-0-13-461527-1

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## Assignments:

Complete details about the assignment will be available on NYU Brightspace. Deadlines are listed on the calendar, which is the last page of the syllabus.

**Forum Slides:** Each student will post one slide to an online shared presentation deck 24 hours before class on scheduled weeks. The slide should contain a short quote from the week's reading along with a question, comment, or image relevant to the topic. (Credit/No Credit)

**Case Study :** In pairs, students will serve as case study discussion leaders on scheduled weeks. Students will present an ethics case study for 10-15 minutes and stimulate the class with a vigorous 15-20 minute discussion or exercise. The goal is to connect readings to real professional, personal, or societal situations. (Credit/No Credit)

**Homework :** Students will gather data on themselves and reflect on what they discover. Some information gathered for homework will be the basis for exercises during subsequent classes. 3.1 DataMine 3.2 BaseRates 3.3 DefaultDebate (Grade)

**Debate :** In groups, students will represent organizations with competing interests over the societal consequences of data technology. Each group will argue their perspective and answer questions from other groups. An entire class period is devoted to the debate. Students who miss the debate must submit a 15-page paper arguing all sides in the case. Students absent without notification will receive a zero. (Grade)

**Classroom Lab Reports :** Together we will complete short thought experiments in our regular ethics lab during class. Students will submit documentary evidence of their thinking each week in the form of shared slides or written responses. (Credit/No Credit)

Assignments	Percent
Slides (7)	35
Leaders	10
Homework (3)	15
Debate	15
Classroom Labs	25
<b>Total</b>	<b>100</b>

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## Assignment Guidelines:

### Submitting assignments:

Deadlines are on the class calendar, which is the last page of the syllabus. Assignments are expected at the beginning of class on the date specified otherwise it is considered late. Work that is incomplete, insufficient, or incoherent will be returned for revision.

In the unlikely event that a deadline cannot be met, advance arrangements must be made to receive credit. Students must contact me to negotiate a late submission. Late assignments may not be returned when other students receive their feedback. The quality and depth of feedback will also be compromised. The late submission of any assignment will negatively influence the grade. Assignments build on each other so submitting late may impact the quality of grades for the duration of the semester.

Assignments must be submitted through the classroom technology software. Please note that:

- Assignments are due at the beginning of each class.
- The classroom technology may close each assignment after the deadline.
- Upload assignments as attached files.
- Write your name on all submissions, especially within the text of a digital file.
- Assignments sent by email will not be graded.

### Writing

Good writing skills are essential for any graduate level course and are fundamental for professional life. Writing is a form of communication. Ideas need to be transmitted without distraction. For this reason, form and structure do impact the quality of your writing. Logic, syntax, spelling, grammar and organization are evaluated along with the quality of ideas.

I reserve the right to use any automated method, including SafeAssign, to detect plagiarism in work submitted by students for this course. If you are in doubt about the line between paraphrasing, quoting and plagiarism, ask me.

Formatting: Please always submit 12-point double-spaced text for easy reading.

Digital Files: Also remember to put your name on the first page within any digital file. I will accept writing assignments in Microsoft Word .doc, .docx, .rtf or Open Office .odt document formats. Draft assignments submitted in .pdf format will not receive extensive comments.

### Citations

Use citations in written assignments. Citations show the source for a direct quote, any number, or a fact not commonly known. The intention is to give the reader enough information to find your source.

I recommend using a citation manager, like Zotero. However, if you choose to create citations by hand, I suggest the APA citation style with the author and year at the end of a sentence (American Psychological Association, 2010). There is excellent advice on the APA site <http://www.apastyle.org>.

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## Assessment:

### Attendance

You are expected to attend class regularly with the exception of rare commitments. Important preparation for assignments is conducted during class time. Be aware that missing class might make it difficult to complete assignments appropriately and result in a lower grade. Please get a phone number of another student if you anticipate missing a session.

I discourage the use of laptops during class, outside of during lab sessions.

### Grading Scale

Each student will be assessed on participation, group projects, and individual assignments. Plus (+) and minus (-) grades indicate your range within the grade.

A	10	Exceptional Excellence
+	0	
A	94	Excellent
A-	90	
B	87	
+		
B	83	Very Good
B-	80	Fair (Optional Revision)
C	77	
+		
C	73	Adequate (Mandatory Revision)
C-	70	
D	67	Unsatisfactory (Meeting Required)
+		
D	63	
D-	60	
F	0	Failed

## Policies

Class Notices:	The most recent syllabus, assignments and in-class projects will be posted on the classroom technology platform. Important updates will be sent to your university email address. It is your responsibility to make sure that your university email is set up properly, including the ability to forward emails to an account you check more regularly.
Classroom Tools:	<b>Google Docs</b> using your NYU address <b>NYU Classes</b> <a href="http://home.nyu.edu">http://home.nyu.edu</a> is the classroom technology platform.
Collaboration:	Each student is expected to make an individual contribution to group projects. Although students are encouraged to work with each other to discuss and solve problems, submission of identical or nearly identical work for individual assignments will be seen as an infraction of the university honor code.
Academic Integrity:	<i>At NYU, a commitment to excellence, fairness, honesty, and respect within and outside the classroom is essential to maintaining the integrity of our community. By accepting membership in this community, students take responsibility for demonstrating these values in their own conduct and for recognizing and supporting these values in others. In turn, these values will create a campus climate that encourages the free exchange of ideas, promotes scholarly excellence through active and creative thought, and allows community members to achieve and be recognized for achieving their highest potential. In pursuing these goals, NYU expects and requires its students to adhere to the highest standards of scholarship, research and academic conduct.</i>
Special Needs Policy:	Any student attending NYU who needs an accommodation due to a temporary or chronic psychological, visual, hearing, mobility and/or learning disability should register with the <b>Moses Center</b> for Students with Disabilities at (212) 998-4980, 726 Broadway, 3rd Floor. Please reach to me to discuss specifics.
Office Hours:	I am available by appointment, including nights and weekends. Workday availability may be limited.
Email: <b>APSTA2062</b>	Feel free to ask questions by email. However keep in mind that I may not be able to answer immediately, especially those sent less than 12 hours before class. Emails with <b>APSTA2062</b> or <b>Ethics</b> in the subject line from nyu.edu email addresses are given priority.
Emergencies:	Please let me know if you have an emergency situation that might divide your attention during class. Given my stated email policy, students who have an emergency within 12 hours of class are responsible for speaking to me in class to make sure I am aware of the situation.
..final thoughts: <b>APSTA2062</b>	Reflect. Respond. Support. Ask. Decide. We will be emphasizing critical thinking as we discuss data ethics. An ability to see things from multiple perspectives is essential in ethical analysis. Your input is vital to making our learning community.
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## Bibliography

This is a complete bibliography of all potential required and suggested reading material. Some citations contain a link may require logging into the University Library and others are

books and therefore do not have a link. See the Reading Schedule below for the reading for each week.

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  - World Medical Association's Declaration of Helsinki: Historical and contemporary perspectives. 6th revision (current). WMA 2008 <http://www.wma.net/en/30publications/10policies/b3/index.html>
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  - WEB: Quantified Self. Self-tracking tools. <http://quantifiedself.com/guide/tag/0>
  - WEB: COMPAS, Correctional Offender Management Profiling for Alternative Sanctions Questions <https://www.documentcloud.org/documents/2702103-Sample-Risk-Assessment-COMPAS-CORE.html>
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## Calendar

### **Week 1 - January 25**

#### *Topics:*

- Introductions
- Reviewing the syllabus and class expectations
- What we talk about when we talk about data
- What we talk about when we talk about ethics

#### *Suggested Readings:*

- Watson. Metaphors of Big Data
- Leonelli, S (2015). What Counts as Scientific Data? A Relational Framework
- Baase, p2-30. ch 1. The Pace of Change

### **Week 2 - February 1**

#### *Topics:*

- Measuring individuals and populations
- Data ownership
- Introduction to ethical frameworks
- *Ethics Lab:*
  - Quantified Self. Self-tracking tools. <https://quantifiedself.com>

- The CARE Principles. <https://www.gida-global.org/care>

*Required Readings:*

- Seltzer & Anderson, M. (2001). The dark side of numbers
- Owens (2022). The passivists: Managing risk through institutionalized ignorance in genomic medicine.

*Suggested Readings:*

- Wetzel (2018). Ownership Over Your Data is the New 31<sup>st</sup> Human Right.
- Baase, p452-456 chp 8. Dependence... p398-401 ch.7 Intelligent Machines

*Deadlines:*

- Slide 1

**Week 3 - February 8***Topics:*

- Dignity, privacy, and de-identification
- *Ethics Lab:*
  - Reviewing the DataMine exercise in light of two approaches to deidentification - (1) Future of Privacy Forum: Visual-Guide-to-Practical De-identification and (2) HHS De-identification regulations

*Required Readings:*

- Jacobsen 2010. Making design safe for citizens: Humanitarian experimentation.
- United Nations Universal Declaration of Human Rights

*Suggested Readings:*

- Baase, p52-81 ch2 Privacy

*Deadlines:*

- DataMine

**Week 4 - February 15 - Guest speaker: Julia Stoyanovich, <https://stoyanovich.org/>***Topics:*

- Guest Speaker: Julia Stoyanovich
- *Ethics Lab:*
  - Reviewing data sharing language in informed consent documentation

*Required Readings:*

- Belmont Report: Ethical Principles and Guidelines
- AOIR Ethics Guidelines, Section 2 only: <https://aoir.org/reports/ethics3.pdf>
- Resnik et al. (2017). Data-Intensive Science and Research Integrity

*Deadlines:*

- Slide 2
- ~~Case Study 1~~

**Week 5 - February 22***Topics:*

- Research ethics in practice and in different fields
- Informed consent in practices
- *Ethics Lab*:
  - Reviewing Base Rates homework
  - DNA, informed consent and 23andme

*Required Readings:*

- Boyd, danah. (2016). Untangling research and practice: What Facebook's 'emotional contagion' study teaches us
- The Concept of Informed Consent & Competence. Chapter 8. Faden et al (1986).

*Deadlines:*

- Base Rates

**Week 6 - March 1**

*Topics:*

- Moral reasoning
- A deeper dive into ethical frameworks
- *Ethics Lab*:
  - Looking at nudges through different ethical frameworks

*Required Readings:*

- Blackburn S (2002). Being Good: A short introduction to ethics
- O'Neill C (2016, Feb 4). The Ethical Data Scientist. Slate.
- Thaler (2015). The Power of Nudges, for Good and Bad
- Mattoli (2012) "On Orbitz, Mac Users Steered to Pricier Hotels" WSJ

*Deadlines:*

- Slide 3
- Case Study 2

**Week 7 - March 8**

*Topics:*

- Modeling
- Training data and reality
- *Ethics Lab*:
  - Zika virus, social media surveillance, and model drift

*Required Readings:*

- Hand, & Henley (1997). Statistical Classification in Consumer Credit Scoring
- Halevy, Norvig, & Pereira, F. (2009). The Unreasonable Effectiveness of Data

*Suggested Readings:*

- BOOK: Derman (2011). Models behaving badly: why confusing illusion with reality can lead to disaster, on Wall Street, and in life.
- Baase, p.356-374 ch7 Models

*Deadlines:*

- Slide 4

## **March 15**

*Spring Break!*

## **Week 8 - March 22**

*Topics:*

- Predictive analytics
- Calculating intention
- Autonomy and nudge
- *Ethics Lab:*
  - Risk, prediction, and comparisons across cases and fields

*Required Readings:*

- Kleinberg. Solving Social Problems with Machine Learning. Harvard Business Review.
- Siegel (2016). Predictive analytics: who will click, buy, lie, or die.
- Heaven. Hundreds of AI Tools have been Built to Catch COVID. MIT Technology Review.

*Deadlines:*

- Defaults
- Case Study 3

## **Week 9 - March 29 - Tentative Guest Speaker: Vera Khovanskaya**

<https://verakhovanskaya.github.io/>

*Required Readings:*

- Khovanskaya (2022). Hostile Ecologies: Navigating the Barriers to Community-Led Innovation.

*Deadlines:*

- Slide 5
- Case Study 4

## **Week 10 - April 5**

*Topics:*

- Algorithmic fairness
- All readings for this week are associated with the classroom debate\
- *Ethics Lab:* Debate prep

*Required Readings:*

- Corbett-Davies (2016). A computer program used for bail
- Angwin et al (2016). Machine Bias. Software Used to Predict Future Criminals
- Flores, Bechtel & Lowenkamp (2016). False Positives, False Negatives, and False Analyses Community Resources for Justice

*Suggested on ProPublica vs Northpoint:*

- Dieterich & Northpointe Inc,. (2016). COMPAS Risk Scales.
- Larson, J., & Angwin, J. (2016, July 29). ProPublica Responds

*Suggested on Statistical Issues:*

- Kleinberg, Mullainathan, & Raghavan (2016). Inherent Trade-Offs.
- Chouldechova (2017). Fair prediction with disparate impact:
- Mitchell, S., Potash, & Barocas (2018). Prediction-Based Decisions & Fairness
- Larson, Mattu, & Kirchner, Angwin. (2016) How we analyzed the COMPAS recidivism algorithm. ProPublica.

**Week 11 - April 12***Topics:*

- **Guest Speaker:** Andrew Fair, Director of the Population Health Data Hub at NYU Langone

*Required Readings:*

- Salganik (2017) Ch 6: Ethics. <https://www.bitbybitbook.com/en/ethics/ethics-intro/>
- Monroe, D (2018). AI, explain yourself. CACM
- Diakopolous (2013). "Rage against the Algorithms" The Atlantic.

*Deadlines:*

- Slide 6
- Case Study 5

**Week 12 - April 19***Topics:*

- Applied Ethics
- In class debate

*Deadlines:*

- In class debate materials

**Week 13 - April 26***Topics:*

- Social classification
- Comparing people and populations
- *Ethics Lab:*
  - Experian Mosaic Consumer classification
  - ESRI Tapestry segmentation

*Required Readings:*

- Broussard (2019) Nonbinary People in Databases
- Espeland. Rankings & Reactivity: How Public Measures Recreate Social Worlds.
- Hacking, I. (2007). Kinds of People: Moving Targets.

*Deadlines:*

- Case Study 6

**Week 14 - May 3**



*Topics:*

- Conclusions
- Solving political, social, and personal problems with tech

*Required Readings:*

- Wedell-Wedellsborg (2017). Are you solving the right problems? Harvard Business Review

*Pick one of the following news articles for the final slide deck:*

- Black E. (2002) 'IBM and the Holocaust': Village Voice
- Sankin (2017). How activists of color lose battles against Facebook moderator army.
- Ingold & Soper (2016). Amazon Doesn't Consider Race of Its Customers. Should it?
- Zeide E (2014). The Proverbial Permanent Record
- Hill K & Matt S. (2018 Feb 7) The House That Spied on Me.
- York (2016) Getting banned from Facebook can have unexpected consequences

*Deadlines:*

- Slide 8