

# AI, Machine Learning and Ethics in Law and Regulation

LAW 6930

**Class Periods:** N/A

**Location:** N/A

**Academic Term:** N/A

## **Instructor:**

TBD

Email Address: TBD

Office Phone Number: TBD

Office Hours: TBD

## **Teaching Assistant/Peer Mentor/Supervised Teaching Student:**

Please contact through the Canvas website

- Name, email address, office location, office hours

## **Course Description**

AI and machine learning create opportunities for the collection, aggregation, analysis, and use of information to create, capture and deliver value both financially and in terms of overall societal good. However, without It also creates dangers such as privacy violations and discrimination, as well as simple hubris about the effectiveness of management by algorithm. This course introduces students to the legal, policy, and ethical dimensions of big data, predictive analytics, and related techniques.

## **Course Pre-Requisites / Co-Requisites**

None

## **Course Objectives**

The purpose of this course is to provide cross-disciplinary perspectives on Artificial Intelligence. Students will, upon successful completion of this course, be able to (1) identify the complex interaction between private governance and government regulation, (2) address trade-offs between regulation and innovation, (3) analyze the impacts of AI on individual rights, discrimination, and architectures of control.

## **Materials and Supply Fees**

List if applicable

## **Required Textbooks and Software (assuming Python 3.X is the programming language)**

- Readings will be articles and case studies

## **Recommended Materials**

- None

## **Course Schedule (assuming Python 3.X is the programming language)**

### Week 1: [Promise and Peril of AI](#)

Jacob LaReviere et al, Where Predictive Analytics Is Having the Biggest Impact  
Harvard Business Review, May 25, 2016

- What are the main business value propositions for analytics and big data?

Will Oremus, Move Fast and Break Trust, Slate, March 7, 2017

- What do the issues with Google's smart speaker and Uber's autonomous driving system have in common?

John C. Hull, Machine Learning in Business: Issues for Society, Rotman Management Magazine, Dec 31, 2019

- How do you partner with machines in ways where benefits outweigh costs to humanity?

### Week 2: [AI Decision-making](#)

Black Mirror: Entire History of You (series 1 episode 3)

- How can failure to appreciate how data is collected and analyzed lead to problems?

Pedro Domingos, A Few Useful Things to Know about Machine Learning, Communications of the ACM, October 2012

- What are the ways that machine learning requires human judgement or intervention?

Zeynep Tufekci, The Real Bias Built In at Facebook, N.Y. Times, May 19, 2016

- Why was Facebook criticized for its Trending Topics?
- If algorithms are inherently biased, does that undermine the value of analytics in business?

### Week 3: [Economic Effects of AI](#)

Brynjolfsson, E., Rock, D., & Syverson, C. (2017). "[Artificial intelligence and the modern productivity paradox: A clash of expectations and statistics](#)" (No. w24001). National Bureau of Economic Research. (Available on CourseWorks)

Mokyr, Joel, Chris Vickers, and Nicolas L. Ziebarth (2015). "[The history of technological anxiety and the future of economic growth: Is this time different?](#)." The Journal of Economic Perspectives 29.3 (2015): 31-50.

Korinek, A., & Stiglitz, J. (2017). "Artificial Intelligence and its implications for income distribution and unemployment", National Bureau of Economic Research, Inc. <http://www.nber.org/papers/w24174>

### Week 4: [Regulation of AI](#)

Ryan Calo, Artificial Intelligence Policy: A Primer and Roadmap, 51 U.C. Davis L. Rev. 300 (2017)

"Big Data: Bringing Competition Policy to the Digital Era - Executive Summary" (OECD, 2017)

Gillian Hadfield, Rules for Robots: Building Effective Regulation for Artificial Intelligence

### Week 5: [Accuracy](#)

Black Mirror: Be Right Back (Series 2 episode 1)

Gary Marcus & Ernest Davis, 8 (No, 9!) Problems with Big Data, N.Y. Times, April 6, 2014

- What are some of the common themes in the authors' list of problems?

David Lazer et al, The Parable of Google Flu, Science, March 14, 2014

- Why was Google Flu Trends so accurate initially, and not subsequently?
- Should the failure of Google Flu make us skeptical about business analytics?

Michael Luca et al, Algorithms Need Managers, Too, Harvard Business Review, January-February 2016

- What is the role for business managers in overseeing the use of analytics?

Week 6: [Transparency](#)

Black Mirror: Hang the DJ (Series 4 episode 4)

Read Houston Federation of Teachers v. Houston Ind. School District (S.D. Texas, May 4, 2017)

- On what legal basis did the teachers challenge the value added measures system?

Jenna Burrell, How the Machine 'Thinks': Understanding Opacity in Machine Learning Algorithms, Big Data & Society, January-June, 2016

- Why is it difficult to identify the bases for recommendations generated by machine learning?

Cliff Kuang, Can A.I. Be Taught to Explain Itself?, New York Times, November 21, 2017

- Can "explainable AI" techniques address the dangers of analytics?

Elizabeth Holm, In Defense of the Black Box, Science, April 5, 2019

- Under what circumstances are "black box" decisions acceptable, or even desirable?
- Does the author address the concerns about nontransparency raised by the other articles?

Week 7: [Risk and responsibility](#)

Black Mirror: Hated in the Nation (Series 3 episode 6)

Andrew Smith, Franken-Algorithms: The Deadly Consequences of Unpredictable Code, The Guardian, August 30, 2014.

- Was Uber irresponsible in putting an autonomous vehicle on a public road?
- How do business incentives and engineering standards each contribute to the dangers of algorithmic systems?

National Transportation Safety Board, Preliminary Report, May 24, 2018

- Based on these findings, who if anyone should be held responsible for the death of Elaine Herzberg, the pedestrian struck by the Uber self-driving car?
- How could the risk of future accidents be mitigated?

Karen Hao, When Algorithms Mess Up, the Nearest Human Gets the Blame, MIT Technology Review, May 28, 2019

- What is the concept of "moral crumple zones"? How does it relate to responsibility for harms involving algorithmic systems?

Week 8: [Fairness](#)

Black Mirror: Men Against Fire (Season 3, Episode 5)

Kate Crawford, The Hidden Biases in Big Data, Harvard Business Review, April 1, 2013

- What did the services the author describes do wrong?

Alex Miller, Want Less-Biased Decisions? Use Algorithms, Harvard Business Review, July 26, 2018

- So there's nothing to worry about?

Harini Suresh and John Guttag, A Framework for Understanding Unintended Consequences of Machine Learning (January 2019)

- What are the different forms of fairness the authors describe? • Is it possible to build a fair system using machine learning?

Julia Angwin et al, Machine Bias, ProPublica, May 23, 2016

- Does the Propublica report demonstrate unfair outcomes from the use of the COMPAS system for sentencing?
- What might explain the racial variations the researchers found?

Week 9:        **Discrimination**

Aaron Klein, Credit Denial in the Age of AI, Brookings.com, April 11, 2019

- How can algorithms potentially create legally actionable discrimination in credit decisions?

Ricci v. DeStefano, 557 U.S. 557 (2009)

- How did the New Haven fire department respond when it found that white candidates did better on its promotion test?
- How did the court rule on the legal challenge to the fire department's actions, and why?

Texas Dept. of Housing and Community Affairs v. Inclusive Communities Project (2015)

- How does the court respond to statistical evidence that low-income housing tax credits are offered primarily in non-white areas, arguably worsening segregation?

Andrew Selbst, A New HUD Rule Would Effectively Encourage Discrimination by Algorithm, Slate, August 19, 2019

- How would the proposed rule affect claims of algorithmic discrimination?

Week 10:       **Manipulation**

Zeynep Tufekci, Algorithmic Harms Beyond Facebook and Google: Emergent Challenges of Computational Agency, Journal on Telecom. and High-Tech Law (2015), pp. 203-209

- Why was Facebook's emotional contagion study controversial?
- What is "algorithmic gatekeeping"? Why does Tufekci believe it is a concern?

danah boyd, Untangling Research and Practice: What Facebook's "Emotional Contagion" Study Teaches Us, Research Ethics (2016)

- Why does boyd advocate an approach to ethics "that does not differentiate between corporate and research practices"?

Yoree Koh and Jessica Kuronen, How Tech Giants Get You to Click This (and Not That), Wall Street Journal, May 31, 2019

- What is the difference between illegitimate "dark patterns" and ordinary interactive design techniques to maximize clicks?

Helen Coffey, Airlines Face Crack Down on Use of "Exploitative" Algorithm That Splits Up Families on Flights, The Independent, November 19, 2018

- Is it right to describe the airline practice in question an "exploitative algorithm"?

Week 11:       **Market Power**

Jerry Useem, How Online Shopping Makes Suckers of Us All, Atlantic Monthly, May 2017

- Do you find algorithmic pricing practices troubling?

Greg Sivinski, Alex Okuliar & Lars Kjolbye (2017) Is big data a big deal? A competition law approach to big data, European Competition Journal, 13:2-3, 199-227, DOI: 10.1080/17441056.2017.1362866

- Do antitrust authorities understand big data?

Johnson, Justin and Sokol, D. Daniel, Understanding AI Collusion and Compliance (January 16, 2020). Cambridge Handbook of Compliance, (D. Daniel Sokol & Benjamin van Rooij, editors), (Forthcoming). Available at SSRN: <https://ssrn.com/abstract=3413882>

- Is AI collusion even possible

Sonia Kuester Pfaffenroth, Pricing Algorithms: The Antitrust Implications,

<https://www.arnoldporter.com/en/perspectives/publications/2018/04/pricing-algorithms-the-antitrust-implications>

Is antitrust risk real?

Week 12: [Data Collection and Aggregation](#)

Black Mirror: Arkangel (Series 4 episode 2)

Solon Barocas and Helen Nissenbaum, Big Data's End Run Around Procedural Privacy Protections, Communications of the ACM (November 2014)

- Why do the authors believe that transparency and consent are insufficient?

Gina Kolata, Your Data Were 'Anonymized'? These Scientists Can Still Identify You, New York Times, July 23, 2019

- How does de-anonymization work?

Kashmir Hill and Surya Mattu, How a Company You've Never Heard of Sends You Letters about Your Medical Condition, Gizmodo, June 19, 2017

- How can Acurian obtain seemingly private medical information?

The White House, Big Data: Seizing Opportunities, Preserving Values (2014), pp. 15-21

- What are the key elements of US privacy law?
- Do you think the U.S. legal framework is effective in general? Will it be effective for the novel challenges of big data and business analytics?

Izaak Crook, How GDPR Will Affect Data Science, Dataconomy.com, April 13, 2018

- How will the European General Data Protection Regulation affect the way companies use analytics?

Week 13: [Prediction and Ethical Issues](#)

Charles Duhigg, How Companies Learn Your Secrets, N.Y. Times Magazine, Feb. 16, 2012

- How does Target analyze customer data to make inferences about customers?
- In your opinion, is the Target system an intrusion on privacy? Why or why not?
- Do Target's actions violate any legal rules?
- Do Target's actions violate any ethical norms?
- Should Target do anything differently?

Michal Kosinski et al, Private Traits and Attributes are Predictable from Digital Records of Human Behavior, Proceedings of the National Academy of Sciences, April 9, 2013

- What kinds of information can be predicted based on Facebook Likes?
- What could possibly go wrong?

Jeffrey Mervis, Can a Set of Equations Keep U.S. Census Data Private?, Science, January 4, 2019

- What is differential privacy, and why is the US Census Bureau using it?

Khari Johnson, How Federated Learning Could Shape the Future of AI in a Privacy-Obsessed World, Venturebeat, August 9, 2019

- What is federated learning, and how could it address privacy concerns around analytics?

Week 14: [Social Credit and “Scoring” Society](#)

Mara Hvistendahl, Inside China’s Vast Experiment in Social Ranking, Wired, Dec. 14, 2017

- What are the major elements of China’s system?

Christopher Mims, The Secret Trust Scores Companies Use to Judge Us All, Wall Street Journal, April 6, 2019

- How are these trust scores similar to, and different than, the social credit scores in China?

Kate Crawford and Jason Schultz, Big Data and Due Process: Toward a Framework to Redress Predictive Privacy Harms, 55 Boston College Law Review pp. 93-99, 121-28 (2014)

- Can legal mechanisms rein in problematic use of algorithmic scoring systems?

Week 15: [Accountability](#)

Bethan Cantrell, et al, Industry Needs to Embrace Data Ethics: How It Could Be Done (2016)

- What do you think of Microsoft’s data ethics principles?

Darrell West, The Role of Corporations in Addressing AI’s Ethical Dilemmas, Brookings, September 13, 2018

- Which of West’s recommendations are relevant to companies other than the big technology platforms like Google and Facebook?

Algorithmic Accountability Act of 2019 (Senate bill)

- What would this law require? • How effective would it be in addressing the concerns we’ve discussed?

### ***Attendance Policy, Class Expectations, and Make-Up Policy***

Attendance is encouraged but not required as lectures will be available online. Excused absences from tests must be in compliance with university policies in the Graduate Catalog and require appropriate documentation.

<http://gradcatalog.ufl.edu/content.php?catoid=10&navoid=2020#attendance>

### ***Evaluation of Grades***

Assignment	Percentage of Final Grade
Weekly response papers	75%
Test 1	25%
	100%

### ***Grading Policy***

Percent	Grade	Grade Points
90.0 - 100.0	A	4.00
87.0 - 89.9	A-	3.67
84.0 - 86.9	B+	3.33
81.0 – 83.9	B	3.00
78.0 - 80.9	B-	2.67
75.0 - 79.9	C+	2.33
72.0 – 74.9	C	2.00
69.0 - 71.9	C-	1.67

66.0 - 68.9	D+	1.33
63.0 - 65.9	D	1.00
60.0 - 62.9	D-	0.67
0 - 59.9	E	0.00

More information on UF grading policy may be found at:

<http://gradcatalog.ufl.edu/content.php?catoid=10&navoid=2020#grades>

### ***Students Requiring Accommodations***

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center by visiting <https://disability.ufl.edu/students/get-started/>. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

### ***Course Evaluation***

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.ua.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.ua.ufl.edu/public-results/>.

### ***University Honesty Policy***

UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The Honor Code (<https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

### ***Commitment to a Safe and Inclusive Learning Environment***

The Herbert Wertheim College of Engineering values broad diversity within our community and is committed to individual and group empowerment, inclusion, and the elimination of discrimination. It is expected that every person in this class will treat one another with dignity and respect regardless of gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture.

If you feel like your performance in class is being impacted by discrimination or harassment of any kind, please contact your instructor or any of the following:

- Your academic advisor or Graduate Program Coordinator
- Robin Bielling, Director of Human Resources, 352-392-0903, [rbielling@eng.ufl.edu](mailto:rbielling@eng.ufl.edu)
- Curtis Taylor, Associate Dean of Student Affairs, 352-392-2177, [taylor@eng.ufl.edu](mailto:taylor@eng.ufl.edu)
- Toshikazu Nishida, Associate Dean of Academic Affairs, 352-392-0943, [nishida@eng.ufl.edu](mailto:nishida@eng.ufl.edu)

### ***Software Use***

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

### ***Student Privacy***

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see: <https://registrar.ufl.edu/ferpa.html>

***Campus Resources:***



## Health and Wellness

### **U Matter, We Care:**

Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact [umatter@ufl.edu](mailto:umatter@ufl.edu) so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

**Counseling and Wellness Center:** <http://www.counseling.ufl.edu/cwc>, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

### **Sexual Discrimination, Harassment, Assault, or Violence**

If you or a friend has been subjected to sexual discrimination, sexual harassment, sexual assault, or violence contact the [Office of Title IX Compliance](#), located at Yon Hall Room 427, 1908 Stadium Road, (352) 273-1094, [title-ix@ufl.edu](mailto:title-ix@ufl.edu)

### **Sexual Assault Recovery Services (SARS)**

Student Health Care Center, 392-1161.

**University Police Department** at 392-1111 (or 9-1-1 for emergencies), or <http://www.police.ufl.edu/>.

## Academic Resources

**E-learning technical support**, 352-392-4357 (select option 2) or e-mail to [Learning-support@ufl.edu](mailto:Learning-support@ufl.edu).  
<https://lss.at.ufl.edu/help.shtml>.

**Career Resource Center**, Reitz Union, 392-1601. Career assistance and counseling. <https://www.crc.ufl.edu/>.

**Library Support**, <http://cms.uflib.ufl.edu/ask>. Various ways to receive assistance with respect to using the libraries or finding resources.

**Teaching Center**, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring.  
<https://teachingcenter.ufl.edu/>.

**Writing Studio, 302 Tigert Hall**, 846-1138. Help brainstorming, formatting, and writing papers.  
<https://writing.ufl.edu/writing-studio/>.

**Student Complaints Campus:** <https://care.dso.ufl.edu>.

**On-Line Students Complaints:** <http://www.distance.ufl.edu/student-complaint-process>.