ASU college of public service & community solutions

ARIZONA STATE UNIVERSITY

# PAF 586: Data Analytics for the Public Good
# Course Syllabus

**Course Information:**
Course Number: PAF 586
Time: Asynchronous
Discussion Sessions: Sat 9:30am-12:00pm AZ time
Location: Zoom: https://asu.zoom.us/j/212294195

**Instructor Information:**
Instructor: Prof. Jesse Lecy
Email: jdlecy@asu.edu
Office: UCENT 517

**Course Prerequisites:**
There are no prerequisites.

## I. Course Description, Course Goal and Course Learning Objectives:

Public agencies are increasingly interested in unlocking the potential of large-scale data to improve service delivery and inform policy efforts. Computational tools capable of making productive use of big data have proliferated in recent years, drastically decreasing the barriers to entry for interested parties. This course will explore the practice of using data to improve organizational performance, including techniques for data collection, analysis, and behavior change. Students will operate as their own laboratory through a data journaling exercise, and devise strategies for incorporating data into management practices of public and nonprofit organizations.

One of the key course take-aways is that data can make your organization more effective, but data itself is not sufficient without strong management frameworks. The course is built around a quantified-self experiment where you will use life-logging tools and a journaling system to learn about managing information overload and building goal-oriented, evidence-based routines.

Students will also explore the social, political, and ethical considerations associated with building and managing data analytics programs in the public sphere. Students will engage critical dilemmas of data privacy, data protection, predictive analytics, personalized service delivery and resource provision,

algorithmic regulation, and large-scale data analytics for administrative efficiencies and resource management optimization, among others.

Students will read several case studies that explore the use of data in organizations, will engage in discussions about socio-economic policy considerations, and write policy guidance frameworks on best practices in evidence-based management, open data, and privacy.

**Learning Objectives**

At the conclusion of this course, each student will be able to:

- Describe how public agencies harness large-scale data to inform policy design, increase stakeholder engagement, and improve service delivery

- Intelligently consider the social, political, and ethical considerations when building data analytics programs

## II. Assessment of Student Learning Performance & Proficiency: Keys to Student Success

Assigned work, including the course data journaling project, active engagement with weekly readings, and the quality of participation in discussion boards are a critical part of the course learning strategy. The student's course grade is a direct reflection of demonstrated performance on these tasks.

- Students should take stated expectations seriously regarding preparation, conduct, and academic honesty in order to receive a grade reflective of outstanding performance.
- Students should be aware that merely completing assigned work in no way guarantees an outstanding grade in the course.
- To receive an outstanding course grade (using the grading scheme described below and the performance assessment approach noted above) all assigned work should completed on time with careful attention to assignment details.

## III. Course Structure

### A. Assigned Reading Materials

We will use the following required texts:

1. Pentland, A. (2015). *Social Physics: How social networks can make us smarter*. Penguin.
2. Meier, P. (2015). *Digital humanitarians: how big data is changing the face of humanitarian response*. Routledge.
3. Eagle, N., & Greene, K. (2014). *Reality mining: Using big data to engineer a better world*. MIT Press.
4. O'Neil, C. (2016). *Weapons of math destruction: How big data increases inequality and threatens democracy*. Broadway Books.

In addition to the required textbooks, the instructor will supplement the assigned unit readings with various journal articles, policy reports, or other related material. These will be made available in the course shell in Canvas.

**B. Course Grading System for Assigned Work, including Final Project:**

Points will be allocated based upon three main assignments: reading summaries and presentations, discussion of topics on the discussion board, and a data journaling exercise.

| | |
|---|---|
| Reading summaries: | 20% |
| Discussion boards: | 50% |
| Data journal labs: | 30% |

Students will participate in an exercise to collaboratively author a guide to creating data-driven organizations by summarizing readings from the course. A schedule of assigned summaries and due dates will be posted on Canvas and the project site. Reading summaries (GitHub chapters) are due the Friday of each week, except Week 1 summaries are due the Friday of Week 2.

Students will engage with weekly material through the YellowDig discussion system. Points are allocated based upon specific actions on the discussion board (see examples below, points may be adjusted). Note that full credit requires active participation for a minimum of 5 weeks (you can earn up to 20 points each week).

- 1 point for a new pin with at least 50 words.
- 2 points for a comment made to another pin.
- 2 points if you receive a comment on your pin.
- 1 point for liking another pin.
- 5 points if you earn an instructor badge for an informative post.
- max of 20 points can be earned each week.
- max of 100 points can be earned overall

The data-driven journaling exercise that will require you to track a handful of personal data indicators over a four-week period, and use the data in exercises to demonstrate important aspects of data-driven management (identifying key indicators, capturing data streams, analysis of data, goal-setting, and engineering organizational change).

Letter grades comport with a traditional set of intervals, subject to instructor discretion:

100 – 99% = A+
98 – 94% = A
93 – 90% = A -
89 – 87% = B+
86 – 84% = B
83 – 80% = B –
Below 80% - C, D, F

**D. General Grading Rubric for Written Work**

Individual assignment grading rubrics will be provided. However, in order to understand the assessment approach for assigned work, in general there are several core elements for the instructor's assessment when grading students' submitted written assignments and/or exams.

1. First, the submitted work is assessed on whether or not it directly addresses the elements requested in the assignment. That is, when assigning a grade, the instructor will ask: did the submitted work actually address clearly and cogently the assigned questions?
2. Second, it is assessed in terms of the quality of the writing in the submitted work. The relevant question: is the submitted work well-written, is it coherent and well organized, does it convey its key content clearly, concisely and effective?
3. Third, does the provided appropriate documentation (where applicable), and is it properly punctuated and adhere to basic standards of appropriate grammar and syntax? (This course will use the APA citation format; additional details on this method of sourcing materials will be provided later.)
4. Fourth, it is assessed by the quality of analytic rigor. That is, the instructor will ask: is any requested analysis performed in the submitted work, and if so, is it done carefully and completely?
5. Fifth and finally, the submitted work is assessed on the author's creativity in completing the assignment. The relevant question here is: did the submitted work provide an original or innovative way of approaching the subject matter and the questions posed in this assessment or research area?

To summarize, in general any submitted work written work (assignments and/or exams) is assessed on these evaluative criteria:

- Assignment completeness – all elements of the assignment are addressed
- Quality of work – substantively rigorous in addressing the assignment
- Demonstrated understanding of the readings and the ability to apply concepts to unique domains

Assignments will be distributed with an accompanying specific assessment rubric.

**E. Late and Missing Assignments**

This course is based on students reading course material, participating in discussion with colleagues and producing analytic essays. Accordingly, if students do not participate fully and completely, assessment of student performance will reflect that directly. For example, points lost for lack of participation in a weekly discussion session are not eligible for remedial action.

All assigned work is accompanied by detailed instructions, adequate time for completion and opportunities to consult the instructor with questions. As a result, each assignment element in the course is expected to be completed in a timely fashion by the specified due date. Unless arrangements have been made beforehand, late assignments will be docked a letter grade for each day late (subject to the instructor's discretion). Late material should be submitted through Canvas, not sent via email. Missed exams (when applicable) will result in a zero, unless prior arrangements have been made.

**F. Course Communications and Instructor Feedback:**

The course is supported on the university's Canvas platform; as such, electronic course materials will be supported through that course site.

- Course communications will be transmitted via Canvas and/or through the class email list.
- Students should generally expect replies to instructor emails in 24 and 48 hours, with some exceptions for travel and other constraints.
- The timeline for instructor grading or other feedback on assignments, either writer work or online discussion work, is generally between 5 and 10 work days.

**G. Student Conduct: Expectation of Professional Behavior:**

Respectful conversations and tolerance of others' opinions will be strictly enforced. Any inappropriate language, threatening, harassing, or otherwise inappropriate behavior during discussion could result in the student(s) being administratively dropped from the course with no refund, per ASU policy USI 201-10. Students are required to adhere to the behavior standards listed in the Arizona Board of Regents Policy Manual Chapter V—Campus and Student Affairs .

**H. Academic Integrity and Honesty**

ASU expects the highest standards of academic integrity. Violations of academic integrity include but are not limited to cheating, plagiarism, fabrication, etc. or facilitating any of these activities. This course relies heavily on writing and original critical thought. Any student who is suspected of not producing his or her own original work will be reported to the College of Public Programs for investigation. **Plagiarism will not be tolerated**. **Any student who plagiarizes or otherwise fabricates his or her work will receive no credit for that assignment. It will be recorded as zero points—and the student will risk a failing grade for the course.** For more information, refer to http://provost.asu.edu/academicintegrity.

**I. Student Learning Environment: Accommodations**

**Disability Accommodations:** Students should be fully aware that the Arizona State University, the MA in EMHS program, and all program course instructors are committed to providing reasonable accommodation and access to programs and services to persons with disabilities. Students with disabilities who wish to seek academic accommodations must contact the ASU Disability Resources Center directly. Information on the Center's procedures, resources and how to contact its staff can be found here: https://eoss.asu.edu/drc/. The Disability Resources Center is responsible for reviewing any student's requests; once that review has taken place, the Center will provide the student with appropriate information on academic accommodations which in turn will be provided to the course instructor.

**Religious accommodations:** Students will not be penalized for missing an assignment due solely to a religious holiday/observance, but as this class operates with a fairly flexible schedule, all efforts should

be made to complete work within the required timeframe. If this is not possible, students must notify the instructor as far in advance as possible in order to make an alternative arrangement.

**Military Accommodations:** A student who is a member of the National Guard, Reserve, or other branch of the armed forces and is unable to complete classes because of military activation may request complete or partial unrestricted administrative withdrawals or incompletes depending on the timing of the activation. For more information see ASU policy USI 201-18.

# Course Schedule

## Key Course Themes

**The Promise of Big Data:**[1]

*In 2017 The Economist declared, "Data is to this century what oil was to the last one: a driver of growth and change. Flows of data have created new infrastructure, new businesses, new monopolies, new politics and – crucially – new economics."*

*In 2011 McKinsey & Co. described big data as "the next frontier for innovation, competition, and productivity."*

*GE looked to big data to drive "changes as profound as industrialization... in the late 1700s".*

**Challenges of Harnessing Data:**[2]

*Many organizations have been slow in compiling, classifying, and organizing the data sitting in siloes and dark corners. It's "a boring, boring job," says Ger Baron, Amsterdam's first-ever chief technology officer. "But very useful!"*

*He ought to know. The Netherlands' capital has 12,000 different datasets, and even they can't tell him everything about the city. For example, no one knows exactly how many bridges span Amsterdam's famous canals, because the city's individual districts have not centralized their infrastructure data.*

*That story underscores the challenges organizations face in the realm of data governance, or the methods and rules that organizations use to assure the quality of data, manage it, integrate it into business processes, and manage its risks.*

**Abundant Data by Itself Solves Nothing:**[3]

*Despite the promise of big data, industrial enterprises are struggling to maximize its value. Why? Abundant data by itself solves nothing. Its unstructured nature, sheer volume, and variety exceed human capacity and traditional tools to organize it efficiently and at a cost which supports return on investment requirements. Inherent challenges tied to evolution and integration of industrial information and*

[1] https://www.theregister.co.uk/2017/06/07/go_small_on_big_data/
[2] https://sloanreview.mit.edu/case-study/lessons-from-becoming-a-data-driven-organization/
[3] https://graymattersystems.com/cio-survey-reveals-challenges-opportunities-potential-industrial-big-data/

*operational technology, make it difficult to glean intelligence from operational data, compromising projects underway and promise for further investment and value.*

**Firms are years away from getting full value from their data assets:**[4]

*Throwing cash at the problem isn't helping matters either. Companies need to scale back their ambitions to invest in projects that are more evolutionary than revolutionary in nature, looking to tweak rather than overhaul existing operational practices. In short, the best big data strategy may be to go small.*

**Effective Approaches Entail:**[5]

*It's tough enough for many organizations to catalog and categorize the data at their disposal and devise the rules and processes for using it. It's even tougher to translate that data into tangible value.*

*There would be no data and analytics revolution without easily accessible, increasingly inexpensive computing power: the cloud, the Internet, and powerful, versatile software and algorithms. Yet technology is only part of the story. People are equally important.*

*The technology and the people who deploy it also need a process or system of rules to guide how people create and use information. Rules help transform the noise of disordered information into legible signals with the power to sharpen and deepen the focus on the customer (broadly defined), and in the process improve health outcomes, the customer experience, the realization of business value, and civic life and engagement.*

## TOPICS WE WILL COVER IN THIS COURSE

What is data-driven management?

How can new sources of data improve management, decision-making, and public policy?

Data-driven management practices need to:

1. Address information blindness
2. Measure performance in a consistent way
3. Create opportunities for reflection / learning

What new technologies have enabled "big data"?

1. Sensors
2. Crowd-sourcing
3. Artificial intelligence
4. Open data laws

Types of data collection and challenges:

1. Active observation (how do we measure important constructs?)

[4] https://www.theregister.co.uk/2017/06/07/go_small_on_big_data/
[5] https://sloanreview.mit.edu/case-study/lessons-from-becoming-a-data-driven-organization/

2. Passive observation (how do we translate data streams to useful observations?)
3. Administrative data (how do we link datasets?)
4. Crowd-sourcing (how do we define governance to ensure data quality?)

Uses of data:

1. Discovery
2. Prediction
3. Evaluation
4. Experiments

Designing and conducting managerial experiments. Using data to:

1. Identify effective practices
2. Motivate people
3. Improve team performance
4. Promote organizational learning

Best practices regarding:

1. Privacy
2. Open data
3. Avoiding bias and harm

## Reading Assignments: Due Friday of Each Week

Each week one team is assigned to a topic. They are responsible for reading all of the articles listed under the topic and creating an overview of key management insights and suggested best practices for the topic, and short (half page) summaries of each article. The summaries comprise the chapters of a collaborative class text book that is written using an open-source book model. The purpose of this assignment is to create a useful overview of the topics covered in this class that will serve as a reference guide so that it is easy for students to find content in the future.

https://ds4ps.github.io/data-driven-management-textbook/

The team is also responsible for writing a blog post with the key insights from the readings, and some discussion questions for classmates. These will be posted on YellowDig each week.

**Team 1**
William Seeley
Lauren Zajac

**Team 2**
Carlos Lopez
Matthew Simon

**Team 4**
Lindsey Duncan
Justin Stoker

**Team 5**
Erin Hart
Rachael Goodwin

**Team 6**
Thomas Kolwicz
Dennis Stockwell

**Team 7**
Lorna Romero
Julie Moore

**Team 3**
Joseph Lynch
Marcela Morales

Part of the reason for crowd-sourcing a reference guide is there is too much material for each student to read carefully each week. Students are required to read at least one article from each topic each week, open to their discretion. Most weeks cover 2-3 topics.

## Week 1: Introduction to Data-Driven Organizations

*This week introduces the topic of using data improve management, decision-making, and public policy. Each text provides different public and nonprofit sector contexts for data-driven management practices: organizations, cities, and humanitarian relief.*

### Learning Objectives

After completing this unit you will be able to:

1. Give examples of public organizations using data to enhance performance.
2. Define "big" data.
3. Identify challenges of using big data for management.

### Assigned Readings (Due Friday, Jan 18)

#### The Big Promise of Big Data (Team 1)

1. Pentland, A. (2015). *Social Physics: How social networks can make us smarter*. Penguin. **CH1**
2. Meier, P. (2015). *Digital humanitarians: how big data is changing the face of humanitarian response*. Routledge. **CH1**
3. The Age of Big Data: *New York Times* https://www.nytimes.com/2012/02/12/sunday-review/big-datas-impact-in-the-world.html

#### The Challenge of Big Data: Information Blindness (Team 2)

4. Duhigg, C. (2016). *Smarter faster better: The secrets of being productive*. Random House. **CH8 pp 238-247, 252-267**
5. Meier, P. (2015). *Digital humanitarians: how big data is changing the face of humanitarian response*. Routledge. **CH2 the rise of big crisis data pp 25-31**
6. Gugerty, M. K., & Karlan, D. (2018). Ten reasons not to measure impact—And what to do instead. *Stanf. Soc. Innov. Rev*.

### The Challenges of Big Data: Organizational Change (Team 3)

7. Desouza, K. C., & Smith, K. L. (2014). Big data for social innovation. *Stanford Social Innovation Review*, *2014*, 39-43.
8. Barton, D., & Court, D. (2012). Making advanced analytics work for you. *Harvard business review*, *90*(10), 78-83.
9. Despite big investments in data, many companies have not made it profitable: https://www.theregister.co.uk/2017/06/07/go_small_on_big_data/
10. Why managers hate agile management: https://www.forbes.com/sites/stevedenning/2015/01/28/more-on-why-managers-hate-agile/#186ce9f010ea

### Challenges of Big Data: Ethics and Privacy (Team 4)

11. O'Neil, C. (2016). *Weapons of math destruction: How big data increases inequality and threatens democracy*. Broadway Books. **Introduction pp 1-13**
12. The data that turned the world upside down: https://publicpolicy.stanford.edu/news/data-turned-world-upside-down
13. Eye in the sky: https://www.wnycstudios.org/story/eye-sky (podcast)

    https://www.washingtonpost.com/business/technology/new-surveillance-technology-can-track-everyone-in-an-area-for-several-hours-at-a-time/2014/02/05/82f1556e-876f-11e3-a5bd-844629433ba3_story.html?utm_term=.3be05b5b0d1d (Washington Post story)

## LECTURES

1. A taxonomy of data: defining big, complex, and messy

## LAB COMPONENT

- Step 1: Identify Indicators

# Week 2: Collecting Data Part I – Observing People

*The first requirement for evidence-based management is data. Technologies for collecting data have advanced rapidly in recent years, meaning large amounts of data can now be collected using sensors and apps relatively inexpensively. The case studies over the next two weeks highlight interesting examples of different types of data that has been used by organizations.*

## LEARNING OBJECTIVES

After completing this unit you will be able to:

- Give examples of new types of sensors and crowd-sourcing tools that can be used to generate data for organizations.
- Identify ways in which this data has been used to improve organizational performance or government transparency and accountability.
- Discuss new techniques that help turn raw data from crowd-sourcing platforms and satellite images into structured data that can be used for statistical analysis.

## Assigned Readings (Due Friday, Jan 18)

### Collecting Group Data (Team 5)

1. Pentland, A. (2015). *Social Physics: How social networks can make us smarter*. Penguin. **CH5 observing people in organizations**
2. Eagle, N., & Greene, K. (2014). *Reality mining: Using big data to engineer a better world*. MIT Press. **CH3 gathering group data**

### Processing Satellite Data (Team 6)

3. Meier, P. (2015). *Digital humanitarians: how big data is changing the face of humanitarian response*. Routledge. **CH4 crowd computing satellite and aerial images**
4. Meier, P. (2015). *Digital humanitarians: how big data is changing the face of humanitarian response*. Routledge. **CH6 artificial intelligence in the sky**
5. Radiolab Podcast: **Eye in the Sky** https://www.wnycstudios.org/story/eye-sky

### Using Administrative Data (Team 7)

6. Eagle, N., & Greene, K. (2014). *Reality mining: Using big data to engineer a better world*. MIT Press. **CH7 mobile and internet data**
7. Select three blog posts from I Quant NY: http://iquantny.tumblr.com/
8. 8 Principles of Open Government Data: https://opengovdata.org/

## Lab component

- Step 2: Begin data collection, practice bullet journal method

# Week 3: Collecting Data Part II – Sourcing Data

*The first requirement for evidence-based management is data. Technologies for collecting data have advanced rapidly in recent years, meaning large amounts of data can now be collected using sensors and apps relatively inexpensively. The case studies over the next two weeks highlight interesting examples of different types of data that has been used by organizations.*

## Learning Objectives

After completing this unit you will be able to:

- Discuss types of social media data that can be helpful during disaster responses.
- Identify ways that remote sensors are making cities smart and saving money.
- Identify important features of data quality that should be considered before using data for analysis.

## Assigned Readings (Due Friday, Jan 25)

### Harnessing Social Media Data (Team 1)

1. Meier, P. (2015). *Digital humanitarians: how big data is changing the face of humanitarian response*. Routledge. **CH3 crowd computing social media**
2. Meier, P. (2015). *Digital humanitarians: how big data is changing the face of humanitarian response*. Routledge. **CH5 artificial intelligence for disaster response**

### Remote Sensors (Team 2)

3. Eagle, N., & Greene, K. (2014). *Reality mining: Using big data to engineer a better world*. MIT Press. **CH5 urban analytics: traffic data, crime stats, and closed-circuit cameras**
4. Pentland, A. (2015). *Social Physics: How social networks can make us smarter*. Penguin. **CH8 sensing cities**

### Challenges of Data Quality (Team 3)

5. Meier, P. (2015). *Digital humanitarians: how big data is changing the face of humanitarian response*. Routledge. **CH2 the rise of big crisis data pp 31-47**
6. Meier, P. (2015). *Digital humanitarians: how big data is changing the face of humanitarian response*. Routledge. **CH7 verifying big crisis data via crowd computing**
7. Meier, P. (2015). *Digital humanitarians: how big data is changing the face of humanitarian response*. Routledge. **CH8 verifying big crisis data via artificial intelligence**

## Lab component

- Step 3: Create a simple “personal annual (weekly) report” using data viz.

## Week 4: Data, Now What?

### Assigned Readings (Due Friday, Feb 1)

#### Discovery (Team 4)

1. Pentland, A. (2015). *Social Physics: How social networks can make us smarter*. Penguin. **CH2 exploration**
2. Eagle, N., & Greene, K. (2014). *Reality mining: Using big data to engineer a better world*. MIT Press. **CH8 economic deficits and disasters**

#### Prediction / Moneyball (Team 5)

3. Eagle, N., & Greene, K. (2014). *Reality mining: Using big data to engineer a better world*. MIT Press. **CH6 optimizing resource allocation**
4. Eagle, N., & Greene, K. (2014). *Reality mining: Using big data to engineer a better world*. MIT Press. **CH10 engineering a safer and healthier world**
5. O'Neil, C. (2016). *Weapons of math destruction: How big data increases inequality and threatens democracy*. Broadway Books. **CH1 bomb parts**
6. O'Neil, C. (2016). *Weapons of math destruction: How big data increases inequality and threatens democracy*. Broadway Books. **CH5 justice in an era of big data**
7. O'Neil, C. (2016). *Weapons of math destruction: How big data increases inequality and threatens democracy*. Broadway Books. **CH8 landing credit**

#### Using Big Data for Evaluation (Team 6)

8. Claudia Abreu Lopes, Savita Bailur, Giles Barton-Owe (2018). "Can big data be used for evaluation? A UN Women feasibility study." United Nations Entity for Gender Equality and the Empowerment of Women.
9. Michael Bamberger (2016). Integrating big data into the monitoring and evaluation of development programs. UN Global Pulse

### Lab component:

- Step 4: Design and implement a behavioral change experiment

## Week 5: Managerial Experiments

### Assigned Readings (Due Friday, Feb 8)

#### Motivating People (Team 7)

1. Daniel Pink (2010). What Motivates Us? Harvard Business Review. [ link ]
2. Pentland, A. (2015). *Social Physics: How social networks can make us smarter*. Penguin. **CH4 engagement**
3. Sutherland, J., & Sutherland, J. J. (2014). *Scrum: the art of doing twice the work in half the time*. Currency. **CH1 fixing management with flow**
4. Duhigg, C. (2016). "What we learned from Google's Efforts to Build a Perfect Team." *The New York Times Magazine*, Feb. 25, 2016.

#### Building Effective Teams (Team 1)

5. Pentland, A. (2015). *Social Physics: How social networks can make us smarter*. Penguin. **CH3 idea flow**
6. Sutherland, J., & Sutherland, J. J. (2014). *Scrum: the art of doing twice the work in half the time*. Currency. **CH7 happiness**
7. Pentland, A. (2015). *Social Physics: How social networks can make us smarter*. Penguin. **CH5 collective intelligence**
8. Duhigg, C. (2016). *Smarter faster better: The secrets of being productive*. Random House. **CH5 managing others**
9. Pentland, A. (2015). *Social Physics: How social networks can make us smarter*. Penguin. **CH6 shaping organizations**

#### Managerial Experiments (Team 2)

10. Duhigg, C. (2016). *Smarter faster better: The secrets of being productive*. Random House. **CH8 Charlotte Fludd pp 247-252, the data room 252-256**
11. Eagle, N., & Greene, K. (2014). *Reality mining: Using big data to engineer a better world*. MIT Press. **CH4 engineering public policy**
12. Pentland, A. (2015). *Social Physics: How social networks can make us smarter*. Penguin. **CH7 organizational change**
13. *BBC World Service: "*How Iceland Saved Its Teenagers" November 11, 2017. [ link ]

## LAB COMPONENT

- Step 5: Update your experimental design using insights from the science of habit formation

# Week 6: Architecting Teams and Organizations with Data

## ASSIGNED READINGS (DUE FRIDAY, FEB 15)

### A Tale of Two Data-Driven Management Systems: Amazon and Zappos (Team 3)

14. Sutherland, J., & Sutherland, J. J. (2014). *Scrum: the art of doing twice the work in half the time*. Currency. **CH7 happiness**
15. O'Neil, C. (2016). *Weapons of math destruction: How big data increases inequality and threatens democracy*. Broadway Books. **CH7 sweating bullets**
16. Kantor, J. & Streitfeld, D. "Inside Amazon: Wrestling Big Ideas in a Bruising Workplace." The New York Times, August 15, 2015.
17. Taylor, B. "Why Zappos Pays Employees to Quit, and You Should Too." Harvard Business Review, May 19, 2008.

### Manipulating Crowds (Team 4)

18. O'Neil, C. (2016). *Weapons of math destruction: How big data increases inequality and threatens democracy*. Broadway Books. **CH4 propaganda machine**
19. O'Neil, C. (2016). *Weapons of math destruction: How big data increases inequality and threatens democracy*. Broadway Books. **CH10 targeting citizens**
20. The data that turned the world upside down: https://publicpolicy.stanford.edu/news/data-turned-world-upside-down

## LAB COMPONENT:

- Step 6: Analyze your journal data using the bullet journal "migration" technique

# Week 7: Privacy, Ethics, and Transparency

## Assigned Readings (Due Friday, Feb 22)

### Best Practices for Privacy (Team 5)

1. Pentland, A. (2015). *Social Physics: How social networks can make us smarter*. Penguin. **CH10 data-driven societies, Appendix 2 openPDS**
2. Eagle, N., & Greene, K. (2014). *Reality mining: Using big data to engineer a better world*. MIT Press. **CH2 using personal data in a privacy-sensitive way**
3. Everything you need to know about the EU's new privacy law GDPR: https://www.theverge.com/2018/3/28/17172548/gdpr-compliance-requirements-privacy-notice

### Best Practices to Build Open Data (Team 6)

4. Sunlight Foundation: Open Data Policy Guidelines https://sunlightfoundation.com/opendataguidelines/
5. Open Data Licenses: https://opendefinition.org/guide/data/
6. Project Open Data: https://project-open-data.cio.gov/

### Ethics and Bias of Algorithms (Team 7)

7. O'Neil, C. (2016). *Weapons of math destruction: How big data increases inequality and threatens democracy*. Broadway Books. **CH9 getting insurance**
8. O'Neil, C. (2016). *Weapons of math destruction: How big data increases inequality and threatens democracy*. Broadway Books. **conclusion**

## Lab component:

- Step 7: Final reflection