Data and Society
Syllabus and Course Information 2017

Last update: 1/20/17
Welcome to Data and Society, Low 3039
CSCI 6370 (Grads) / 4370 (Undergrads)
ITWS 6960 (Grads) / 4960 (Undergrads)

• Professor: Dr. Fran Berman

• Office: AE 218, 276-3794

• Office Hours: Friday 1-2 or by appointment (send email to bermaf@rpi.edu)

• Course website (linked off Fran’s RPI web page): http://www.cs.rpi.edu/~bermaf/Data%20Course%202017/Data%20Course%20-%202017.html
Data and Society – about this course

• This course will provide a broad snapshot of the data-driven world
  – We’ll skim the sea of interesting data stuff, but we won’t / can’t include everything
  – We’ll focus more on societal issues than technical issues
  – The course should provide a complement to the material in the ITWS Data Science, Web Science, Data Analytics and other courses

• The course will be structured to
  – Increase your engagement with material
  – Evolve your professional communication and assessment skills
  – Help you develop as a “data-literate” professional

Course topics:
• Data Applications
• Data Infrastructure and Stewardship
• Data and Society

Guest Speaker this Semester:
• Hilary Mason, Fast Forward Labs
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<th>Wednesday Section</th>
<th>Friday lecture</th>
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<td>January 27</td>
<td>L2: Big data applications / Data and the election; Data and Target; Discussion</td>
<td>4 Presentations</td>
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<td>February 1: 6 presentations</td>
<td>February 3</td>
<td>L3: Data and Health / PDB, Precision Medicine; Discussion</td>
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<td>February 8: NO class</td>
<td>February 10</td>
<td>L4: Data and Science / Earthquakes, LHC; Paper Instructions</td>
<td>4 Presentations</td>
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<td>February 22: 6 presentations</td>
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<td>L6: Data Stewardship and Data Preservation; Discussion</td>
<td>4 presentations</td>
<td>Op-Ed Final Due</td>
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<td>March 1: NO class</td>
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<td>March 8: 6 presentations</td>
<td>March 10</td>
<td>L7: Data Futures – Internet of Things; Discussion</td>
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<td>March 15: Spring Break</td>
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<td>March 22: NO class</td>
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<td>L8: Data rights and policy / U.S. and EU; Discussion</td>
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<td>March 29: 6 presentations</td>
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<td>April 5: NO class</td>
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<td>Hilary Mason Guest Lecture</td>
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<td>April 19: 4 presentations</td>
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<td>L9: Data and Ethics; Discussion</td>
<td>4 presentations</td>
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<td>April 26: 6 presentations</td>
<td>April 28</td>
<td>Paper Pecha-Kucha</td>
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What is a PechaKucha?

• “PechaKucha (Japanese: ペチャクチャ, IPA: [petɕa k junitɕa], chit-chat) is a presentation style in which 20 slides are shown for 20 seconds each (6 minutes and 40 seconds in total). The format, which keeps presentations concise and fast-paced, powers multiple-speaker events called PechaKucha Nights (PKNs).” [Wikipedia]

• Later in the semester, we’ll do a pechakucha class for op-ed presentations (March 24) and a pechakucha class for research papers (April 28).
  – These are optional for speakers
  – If you are a speaker, your pechakucha grade can be used to replace one of your presentation grades if it is higher

• TK Woodstock will be “PechaKucha TA”. More later.
Course Information

ww.cs.rpi.edu/~bermaf/Data%20Course%202017/Data%20Course%2020-202017.html

• Course website (above) will have all up-to-date information and materials
  – Syllabus may evolve slightly

• Discussion articles and presentation articles will be on the web
  – Embedded reference materials in the lecture will be given by URL. Lectures will be on the web.

• Discussion articles will be assigned prior to the Friday class in which they will be discussed. You are responsible for reading them and for participating in the discussion.
How You’ll be Graded

Research Paper Draft 16 points
Research Paper Final 16 points
Op-Ed Draft 14 points
Op-Ed Final 14 points
Participation 10 points
Presentation 1 15 points
Presentation 2 15 points

Pecha-Kucha (optional): Score is 15 points, can be used to replace your lowest presentation score

No late work.

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More about grading
(additional grading specifics for Presentations and Op-eds later today)

**Presentations:**
- Students are responsible for scheduling their Presentations and ensuring that both are done. Information about Presentations will be given at the end of today’s class.

**Op-Eds, Papers:**
- Information about Op-Eds will be given today. Information about the Paper Assignment will be given on February 10 (Lecture 4).

**Class participation / attendance:**
- **Students are expected to attend 18+ out of 20 Wednesday and Friday class meetings.** Attendance will be taken in class.
- Participation grade: 5% attendance, 5% class participation (Discussions, Questions for speakers, etc.)

**There will be a slightly different workload for grad students and undergrads**
- Section 2 paper lengths are different.
- In writing and presentations, each student will be assessed at a level appropriate to their educational level (undergrad or grad)
# Learning Objectives and Outcomes

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<th>Learning Objective</th>
<th>Outcome</th>
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<td>Develop greater data literacy</td>
<td>Be able to understand and explain the role that data plays as well as its limitations in various areas of research, commerce and modern life.</td>
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<tr>
<td>Develop critical thinking skills around data</td>
<td>Be able to read, understand, assess, and discuss data-oriented professional and popular publications and articles.</td>
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<tr>
<td>Develop communication skills around data</td>
<td>Be able to advance an evidence-based argument about data, data cyberinfrastructure and data-oriented efforts to both knowledgeable specialists within the field as well as non-specialists.</td>
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Academic Integrity

• Student-teacher relationships are built on trust. For example, students must trust that teachers have made appropriate decisions about the structure and content of the courses they teach, and teachers must trust that the assignments that students turn in are their own. Acts, which violate this trust, undermine the educational process. The Rensselaer Handbook of Student Rights and Responsibilities defines various forms of Academic Dishonesty and you should make yourself familiar with these.

• In this class, all assignments that are turned in for a grade must represent the student’s own work. In cases where help was received, or teamwork was allowed, a notation on the assignment should indicate your collaboration. If references or other materials are used, they should be cited. Submission of any assignment that is in violation of this policy will result in a penalty.

• If found in violation of the academic dishonesty policy, students may be subject to two types of penalties. The instructor administers an academic (grade) penalty, and the student may also enter the Institute judicial process and be subject to such additional sanctions as: warning, probation, suspension, expulsion, and alternative actions as defined in the current Handbook of Student Rights and Responsibilities. If you have any question concerning this policy before submitting an assignment, please ask for clarification.
Op-Eds
Why is it good to know how to write an op-ed?

• Op-ed is a good example of a brief, persuasive communication to advance your point of view
  – Op-eds can have tremendous influence on community and stakeholders
  – Can establish you as an expert
  – Can be useful to your company, project or community
  – Can get your point of view into a more public discourse

• Who is your audience: General public

• What is your purpose: Persuasively get your point of view across
Op-Ed Detail -- Structure

Not all Op-Eds are like this, but many good Op-Eds have this structure:

- **Lede** – *Lead-in around a news hook or personal experience*
- **Thesis** – *your position (explicit or implied)*
- **Argument** – *should be based on evidence (stats, news, reports, expert quotes, scholarship, history, experience).* Arguments often presented as a series of points.
- **Criticism pre-emption** – *take the lead in acknowledging the flaws in your argument and address potential counter-arguments*
- **Conclusion** – *circle back to lede?*

**Lede Options**
- Current news
- Dramatic or personal anecdote
- Reference to popular culture or twist on conventional wisdom
- Anniversary of an event
- Major new study
Op-Ed Tips

• Write in a way that smart people can relate to, even if they are not in your discipline. Don’t use buzzwords or talk “inside baseball” without explaining things.

• Pay attention to publication word count – op-eds are usually quite short

• *If you do this for real* (i.e. send it in to a publication rather than do it for class):
  – The final version may be reviewed and/or edited – what you send in may not be the final draft
  – Do your homework – everyone will read this
  – Be prepared for feedback – blogs, tweets, etc.
Grading Detail – Op-Ed
(Draft and Final each 14 points)

• Grade distribution for draft / final:
  – 7 points on editorial content: ideas, thesis, and support
  – 7 points on writing: does it work as an op-ed, is it compelling, does it make sense?

• **Draft op-eds due February 10** at the beginning of class. Bring a hard copy to class and turn it in at the beginning. Also turn in a .pdf file using **Submitty**: https://submitty.cs.rpi.edu/index.php?semester=s17&course=csci4370
  – Op-ed drafts will be returned with comments on **February 15**.
  – Final op-eds due on **February 22**.
  – Op-ed grades: Draft grade (14 points) + Final grade (14 points)
  – **Important note:** If your draft op-ed is strong, you may choose to not turn in the final op-ed and double your draft grade (op-ed = 2 X draft grade). *You must make this decision and let Fran know before February 22.*

• Op-eds should be in 12 pt. font and between 500 and 1000 words.
Presentations
Grading Detail – Presentations

Do 2 of these, 15 points each

- You are responsible for ensuring that you sign up for 2 during the semester
- Note that you may do these on Friday Sessions or designated Wednesday Sessions
- Presentation articles will be given in class and can be found on the class website
- A print-out of your slides (please include your name) should be handed in by the beginning of the class in which you will present.

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Grading Detail – Presentations

Presentation components
(10 minutes presentation + 5 minutes Q&A):

1. **Summary:**
   - What is the article about?
   - What are the main points of the article?

2. **What are the data issues?**
   - How is data used to support the article’s point of view?
   - What data infrastructure, policy, practice, etc. is needed to be there for the data to play its role?

3. **What is the broader context?**
   - What questions arise from reading this article?
   - What is the point of view presented in the article?

**Note:** You may need to read additional publications, websites for your presentations and reviews

Presentation Grading Metrics:

**Talk (5 pts):**
- Is the presentation compelling?
- Does the presentation tell an interesting story?
- Did the speaker use the timeframe effectively?

**Visuals (4 pts):**
- Are the slides well-organized and informative?
- Do the slides help tell the story?
- Are the slides visually interesting?

**Content (4 pts):**
- Does the speaker understand the topic?
- Has the speaker leveraged appropriate additional materials as needed to support their presentation?

**Q&A (2 pts):**
- Is the speaker well prepared for questions? Can they respond to them articulately?

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Research Paper Assignment
Paper Assignment

- **Paper draft**: 16 points
- **Final paper**: 16 points
  - **Undergrads**: 5 page research paper on a data-related topic (does not include references)
  - **Grads**: 7 page research paper on a data-related topic (does not include references)
- **Paper draft due March 10 before class**
  - Bring hardcopy to class

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Research Paper Structure

Specs

• Paper: 5 pages (undergrad) or 7 pages (grad), 1.5 spaced, 12 pt font
• Focus of paper should be an area of science or society that has been transformed by the availability of digital data
• General outline:
  – Description of the area/problem and the role of data in transforming it
  – Specifics on how data has made the transformation possible
  – Specifics on the kind of data tools, skills, policy, infrastructure, etc. that is needed to support this transformation
  – Conclusion and thoughts about the potential of data in this area in the future
• Paper should include adequate references and bibliography (not included in the page count).
  – If you use material from a source, reference it in the bibliography.
  – If you copy material from a source, put it in quotes and reference it in the bibliography.
Paper Grading Metrics (16 points total)

Content (8 points):
• Does the paper content provide adequate depth and evidence to describe the transformation of an area by digital data?
• Does the paper include appropriate specifics on innovation and infrastructure?
• Are the references reasonable and adequate?

Writing (8 points):
• Is the paper well-organized, readable by non-specialists, and credible to specialists?
• Does the writing tell a story? Is it articulate and compelling?
• Is the paper well-structured with the main points backed up by evidence?

• If you want to check your topic or approach, please come to office hours (Friday 1-2, AE 218) or make an appt. with Fran (bermaf@rpi.edu)

• This can save you time and help you meet the expectations of the assignment

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Paper Draft and Paper Final

• **Paper draft due:** March 10
• **Paper draft returned:** March 31
• **Final paper due:** April 14

• **Important note:** If your draft research paper is strong, you may choose to not turn in the final research paper and double your draft grade (research paper grade = 2 X draft research paper grade). *You must make this decision and let Fran know before April 14.*