Let’s Look at Some Data

- Non-politics introductory statistics courses in social sciences:
  - 5 year average: 2008/09–2013/14
  - ECO 302, PSY 251, SOC 301, WWS 200, WWS 332

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2. Students have **weak mathematical and programming background**
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"as a person not naturally inclined towards statistics and probability, I don’t feel at all qualified to pass judgement on how the course might have been improved."
Two Strategies

1 Motivating students with applications

- Focus on data analysis rather than "paper-and-pencil" statistics
- Teaching principle: Particular $\Rightarrow$ General $\Rightarrow$ Particular
- Statistics as a necessary tool for social science research
- Reanalysis of data from published research
- Final project; Junior papers and senior thesis
- Statistics as a useful skill for post-graduate career
- Stories from course alumni/alumnus in various industries

Helping students learn efficiently

- Short but frequent assignments
- Hands-on instruction in computer labs
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Kosuke Imai (Princeton)  
Teaching Statistics  
November 19, 2015
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3. Bring these experiences back to the regular semester classes and have an impact beyond Princeton
Overview of POL 245

- Module contents:
  - Causality: racial discrimination, minimum wage
  - Measurement: hearts and minds, political polarization
  - Prediction: election forecasting, facial impression and election
  - Discovery:
    - Textual data: federalist papers
    - Network data: twitter network
    - Spatial data: Walmart expansion

- Module format:
  - Two 50 minute lectures
  - Two 80 minute lab sessions
  - One 80 minute guest lecture from industry, discussion over lunch (NYT, Facebook, Google, Political and Energy consulting firms)

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Results and Next Steps

• Students’ feedback:

“The course was a lot of fun and really interesting and I plan on taking the next level of the course.”

“I really enjoyed this course, and that is why I want to take POL345.”

“I felt it gave me a very true sense of what to expect at Princeton.”
Results and Next Steps

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• Diverse students in POL 345 this semester
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• Diverse students in POL 345 this semester

• Increasing enrollment in POL 346: a single digit $\sim 28$
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• Increasing enrollment in POL 346: a single digit ~ 28

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• Diverse students in POL 345 this semester

• Increasing enrollment in POL 346: a single digit \(\sim 28\)

• Next steps:
  1. Completely flip the course
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  2. Offer the course during the regular semester
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• Diverse students in POL 345 this semester
• Increasing enrollment in POL 346: a single digit $\sim 28$

• Next steps:
  1. Completely flip the course
  2. Offer the course during the regular semester
  3. Develop a curriculum for a sequence of statistics and machine learning courses as part of the SML certificate program