

### **Empirical Analysis of Law**

We utilize modern statistical tools, experiments that blur field and laboratory, and recent mathematical developments in game theory, contract theory, and behavioral economics. We will apply the techniques of mathematics, engineering, computer science, and science to study problems in law. Mathematical, computational, and statistical background is helpful. This is a participatory-style class that offers hands-on-learning and participatory learning. Every week every student is seen on a one-on-one basis with Prof. Chen for 15 minutes (attendance is mandatory). This course is open to Masters students and PhD students.

Our class will have 5 methodological themes.

1. Analyze the causal impact of judicial decision using modern machine learning techniques.

Method:

- Distinguish causation from statistical correlations
- Fit mathematical models to large historical datasets
- Use artificial intelligence to distill patterns from complex texts

2. Use experiments and mathematical models to reveal the existence of moral preferences (e.g. non-consequentialist or deontological preferences)

Method:

- Model individual behavior in market environments
- Harness a global, computer-mediated labor market intermediary that mimic modern economic contexts.

3. Engineering human pro-sociality through large-scale datasets

Method:

- Map neurocorrelates of human decision-making to the field
- Econometrics of networks

4. Measure conflicts of interest in the development and marketing of new technologies

Method:

- Detect correlations between pharmaceutical company payments to physicians and patient outcomes
- Parallel programming to analyze terabytes of data

5. Assess the role of law in development and inter-group conflict

Method:

- Apply statistical techniques used in policy evaluation
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## Requirements

Research. 80% of grade broken down into:

*Literature Reviews* - 15%

*Experimental Project* - 15%

*Office Hours* - 10% (weekly progress updates)

*Empirical Exercise* - 25%

*Networks Project* - 15%

The guided research projects are listed at the bottom of the syllabus. I have datasets and program templates for you to follow. You will need to choose a topic for your empirical exercise (I) by the **end of the second week (March 1)**. A critical review of the literature on your topic will be due two office hours later (March 15).

The empirical exercise is broken down into weekly milestones:

March 12, download the relevant datasets and run summary statistics;

March 19, a first-stage between your instrument and endogenous regressor;

March 26, ordinary least-squares and second-stage regression.

The empirical exercise will be due during spring break, on **April 5**.

You should make a compelling argument for the question you are addressing, using both simple forms of data description and regression techniques. You will be expected to both concisely interpret your results, and critique the quantitative methods used. Consider alternative outcomes or robustness tests.

Before spring break, you should pick topics for your experimental (II) and networks projects (III). A literature review for each is due after spring break on **April 16**. Helpful office hours milestones are then:

April 23, download the relevant datasets and present descriptive tables;

April 30, present preliminary tables;

May 7, set up the experimental protocol;

May 14, run the experimental protocol;

May 21, present tables and possible redesigns of the experiment.

The experimental and networks projects are both due on **May 28**.

Class participation. 20% of grade.

Readings are grouped for each class meeting below. I will email these to you and emphasize one paper per class. Student participation is essential. Laptops are not necessary in class. For some papers I may designate one student to present to the rest of the class. You should come to class armed with questions, comments, challenges and syntheses. Quality participation involves not only responding to questions and volunteering insights, but also listening to and learning from your peers.

To aid you in this endeavor, **by 11pm before each class, you should circulate a 250-word email to the entire class summarizing your reactions to the assigned readings.** Why is this question interesting? Why is the research considered an innovation? What tricks did they use to translate a research question to an *implementable* research design? How might the authors' have formulated this question? What other questions does this open up? What assumptions could be examined?

Feel free to raise questions you want to discuss in class, possible discussion points, synthesis and critiques. The responses should bring fresh insight or critique, rather than simply summarizing the papers. They can be broad critiques or focused on specific issues raised in a specific paper. Whatever your response, it should be aimed at facilitating interesting and thoughtful classroom discussion on the assigned readings.

## Policies

*attendance.* Attendance is mandatory. Exceptions for personal or family reasons will be considered

on a case-by-case basis.

*tardiness.* Penalties will be levied on late assignments. The grade will be reduced by one-third of a point (i.e. 5.66 becomes 5.33, etc.) per day for up to five days, at which time the grade is zero.

*office hours.* Weekly office hours and progress updates are mandatory. Office hours will be held in IFW Cafeteria, Friday 3-5 – please sign up for 15-minute slots via Google Calendar.

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## Schedule and Readings

Preliminary Reading:

- **Duflo, Esther, “Empirical Methods,” MIT lecture notes, 2002.**

Week 1: Causal Inference – Natural Experiments

Readings:

- **Kuziemko, Ilyiana, “How Should Inmates be Released from Prison? An Assessment of Parole versus Fixed-Sentence Regimes,” *Quarterly Journal of Economics*, forthcoming.**
- Ponticelli, Jacopo, “Court Enforcement and Firm Productivity: Evidence from a Bankruptcy Reform in Brazil,” mimeo.
  - Imbens, Guido, “Estimation of Average Treatment Effects Under Unconfoundedness,” NBER lecture notes, 2007.

Week 2: Causal Inference – Instrumental Variables

Readings:

- Anwar, Shamena, Patrick Bayer, and Randi Hjalmarsson, “The Impact of Jury Race in Criminal Trials,” *Quarterly Journal of Economics*, 2012.
- **Dobbie, Will and Jae Song, “Debt Relief and Debtor Outcomes: Measuring the Effects of Consumer Bankruptcy Protection,” mimeo.**
  - Imbens, Guido, “Instrumental Variables with Treatment Effect Heterogeneity: Local Average Treatment Effects,” NBER lecture notes, 2007.

Week 3: Causal Inference – Regression Discontinuity

Readings:

- **Matrobuoni, Giovanni, “Police and Clearance Rates: Evidence from Recurrent Redeployment Within a City,” *R&R American Economic Review*.**
- Chen, Daniel L. “The Deterrent Effect of the Death Penalty? Evidence from British Commutations During World War I,” mimeo.
  - Imbens, Guido, “Regression Discontinuity Designs,” NBER lecture notes, 2007.

Week 4: Revealed Preferences

Readings:

- **Lim, Claire S. H., “Preferences and Incentives of Appointed and Elected Public Officials: Evidence from State Trial Court Judges,” *American Economic Review*, 2012.**
- Berdejo, Carlos and Daniel L. Chen, “Priming Ideology? Electoral Cycles Without Electoral Incentives Among Elite U.S. Judges,” mimeo.

- Imbens, Guido, “Discrete Choice Models,” NBER lecture notes, 2007.

#### Week 5: Bridging Theory and Experiments

##### Readings:

- **DellaVigna, S., J. List, and U. Malmandier, “Testing for Altruism and Social Pressure in Charitable Giving,” *Quarterly Journal of Economics*, 2012.**
- Chen, Daniel L. “Markets, Morality, and Economic Growth: Does Competition Affect Utilitarian Commitments?” mimeo.
  - Imbens, Guido, “Generalized Method of Moments and Empirical Likelihood,” NBER lecture notes, 2007.

#### Week 6: Bridging Theory and Empirics

##### Readings:

- **Anwar, S. and H. Fang, “An Alternative Test of Racial Prejudice in Motor Vehicle Searches: Theory and Evidence,” *American Economic Review*, 2006.**
- Chen, Daniel L. and Susan Yeh, “The Impact of Government Power to Expropriate on Economic Growth and Racial Inequality,” mimeo.
  - Imbens, Guido, “Weak Instruments and Many Instruments,” NBER lecture notes, 2007.

#### Week 7: Consequentialist vs. Deontological

##### Readings:

- Bergstrom, T.C., R. Garratt, and D. Sheehan-Connor, “One chance in a million: Altruism and the bone marrow registry,” *American Economic Review*, 2009.
- **Chen, Daniel L. and Martin Schonger, “Social Preferences or Sacred Values? Theory and Evidence of Deontological Motivations,” mimeo.**
  - Duflo, Esther, Rachel Glennerster, and Michael Kremer, “Using Randomization in Development Economics Research: A Toolkit,” in Handbook of Development Economics, 2007.

#### Week 8: Measuring Normative Commitments

##### Readings:

- **Andreoni, James and J. Miller, “Giving According to GARP: An Experimental Test of the Consistency of Preferences for Altruism,” *Econometrica*, 2003.**
- Gibson, R. C. Tanner, and A. Wagner, “Preferences for truthfulness: heterogeneity among and within individuals,” *American Economic Review*, 2012.
  - Camerer, Colin and Ernst Fehr, “Measuring Social Norms and Preferences using Experimental Games: A Guide for Social Scientists,” in Foundations of Human Sociality – Experimental and Ethnographic Evidence from 15 Small-Scale Societies, Henrich, Boyd, Bowles, Camerer, Fehr, Gintis, and McElreath eds.

#### Week 9: Transmission of Normative Ideas

##### Readings:

- **Banerjee, A., Chandrasekhar, A., Duflo E., and Jackson M., “The Diffusion of Microfinance,” mimeo.**
- Teitelbaum, Joshua C. “Analogical Legal Reasoning: Theory and Evidence,” mimeo.
  - Stock, James H. and Mark W. Watson, “Time Series,” NBER lecture notes, 2008.

#### Week 10: Disclosure of Conflicts of Interest

Readings:

- **Finan, Frederico and L. Schechter. “Vote-Buying and Reciprocity”, *Econometrica*, 2012.**
- Greenstone, Michael, P. Oyer, and A. Vissing-Jorgensen. “Mandated Disclosure, Stock Returns, and the 1964 Securities Acts Amendments,” *Quarterly Journal of Economics*, 2006.
  - Leuz, Christian and P. Wysocki. “Economic Consequences of Financial Reporting and Disclosure Regulation: A Review and Suggestions for Future Research,” mimeo.

Week 11: New Technologies

Readings:

- Williams, Heidi. “Intellectual Property Rights and Innovation: Evidence from the Human Genome,” R&R, *Journal of Political Economy*.
- **Chaudhuri, S., P. Goldberg, and P. Jia. “Estimating the Effects of Global Patent Protection in Pharmaceuticals: A Case Study of Quinolones in India,” *American Economic Review*, 2006.**

Week 12: Institutions

Readings:

- **Hornbeck, Richard, “Barbed Wire: Property Rights and Agricultural Development,” *Quarterly Journal of Economics*, 2010.**
- Dell, Melissa, “The Persistent Effects of Peru’s Mining Mita,” *Econometrica*, 2010.

Week 13: Coercion

Readings:

- **Naidu, S. and N. Yuchtman, “Coercive Contract Enforcement: Law and the Labor Market in 19th Century Industrial Britain,” *American Economic Review*, forthcoming.**
- Chen, Daniel L., “Club Goods and Group Identity: Evidence from Islamic Resurgence During the Indonesian Financial Crisis,” *Journal of Political Economy*, 2010.

Week 14: Political Economy of Normative Commitments

Readings:

- **Alesina, A., P. Giuliano, and N. Nunn, “On the Origins of Gender Roles: Women and the Plough,” *Quarterly Journal of Economics*, forthcoming.**
- Chen, Daniel L. and Jo Lind. 2005. “The Political Economy of Beliefs: Why Fiscal and Social Conservatives (Liberals) Come Hand-in-Hand,” mimeo.

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## GUIDED RESEARCH PROJECTS

### I. Empirical Exercise – Estimate Causal Impacts of Legal Precedent Using the Random Assignment of Judges

- **Template:**

- **Chen, Daniel L. and Susan Yeh, “The Impact of Government Power to Expropriate on Economic Growth and Racial Inequality,”** mimeo.
  - **Belloni, Alex, Daniel L. Chen, Victor Chernozhukov, and Chris Hansen, “Sparse Models and Methods for Optimal Instruments with an Application to Eminent Domain,”** *Econometrica*, 2012.
- a. Affirmative Action
    - i. Does affirmative action de-incentivize minorities and non-minorities?
    - ii. What are the long-run consequences of affirmative action on inequality and mobility?
    - iii. How did affirmative action differ from anti-discrimination laws (race or sex discrimination)?
    - iv. Do the benefits of race-based affirmative action accrue to immigrants?
  - b. Abortion
    - i. What are the effects of abortion access on marriage markets?
    - ii. Did abortion law increase women’s labor force participation?
    - iii. Did abortion access affect sexual attitudes, behaviors, crime, and disease?
  - c. Disability Rights
    - i. Did the Americans with Disabilities Act enable and increase job market opportunities for disabled individuals?
    - ii. Did ADA disable by causing individuals to report disabilities?
  - d. Segregation
    - i. How does segregation affect preferences over redistribution?
    - ii. Does segregation breed unfamiliarity and increase hate crime against out-groups?
    - iii. Does segregation increase group identity and affect investment decisions by minorities?
    - iv. Does segregation affect trust in the law and increase crime?
    - v. Do demographic shocks affect the development of laws protecting minority groups?
  - e. Gay Rights
    - i. Do gay rights affect marriages?
    - ii. Do gay rights affect children?
  - f. Campaign Finance
    - i. How does campaign finance law affect campaign spending?
    - ii. How does campaign finance law affect voter turnout?
    - iii. How does campaign finance law affect electoral outcomes?
  - g. Separation of Church and State
    - i. Do appellate court decisions separating church and state increase the political alliance between fiscal and social conservatives (liberals)?
  - h. Gender Violence
    - i. Do incomplete marriage contracts affect divorce and gender violence?
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## **II. Experimental Project – Measuring Normative Commitments**

- a. Judicial Behavior
  - i. Do Republican and Democrat judges use different phrases when writing opinions?
  - ii. Does the degree to which judges use different phrases increase before elections?
  - iii. Structurally estimating a model of judicial ideology to explain dissent patterns across

ideology scores

- b. Wikinomics and the Development of Knowledge
    - i. Interactive Epistemology – creating wikilabs to determine optimal ways of aggregating objective and subjective knowledge
    - ii. Algorithmic Mechanism Design – automated coding of legal texts
  - c. Markets and Morality
    - i. How does working for wages or piece rate affect moral judgment?
    - ii. How does managing others affect moral judgment?
  - d. Disclosure of Conflicts of Interest
    - i. Do exchange rate shocks affect pharmaceutical companies and pharmaceutical company payments to physicians?
    - ii. Do pharmaceutical company payments to physicians affect physician prescription decisions?
    - iii. Do pharmaceutical company payments to physicians affect patient health outcomes?
    - iv. Does disclosure law affect the relationship between pharmaceutical company payments to physicians and physician prescription decisions?
    - v. Does disclosure law affect the relationship between pharmaceutical company payments to physicians and patient health outcomes?
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### **III. Networks Project – Transmission of Normative Commitments**

- a. Disclosure of Conflicts of Interest
  - i. Do physician thought leaders have more pharmaceutical company payments?
  - ii. Does disclosure law affect payments to physician thought leaders?
- b. Postmodern Theories of Knowledge
  - i. Are there “Big Bangs” in scientific citation trees?
  - ii. Are there mass extinctions and big bangs in legal citation trees?
  - iii. Are judges motivated by positive and negative citations?
  - iv. Are innovative judges reversed more often?
- c. Demography of Ideas
  - i. Do ideologies that transmit vertically (parent-to-child) more easily than horizontally (peer-to-peer) have higher fertility rates?
  - ii. Does Aristotelian logic and analogical argumentation explain import-export patterns of ideas across disciplines, countries, and time?
  - iii. Is ideology infectious? Do judges randomly assigned to peers begin thinking like their peers?
- d. Death Penalty
  - i. Were there geographic spillovers in the deterrent and spurring effect of executions for desertions?
  - ii. Did executions in the field affect legitimacy and draft avoidance at home?
  - iii. Were trials for desertion blind to race?