Political Science 508: Theoretical Implications of Empirical Models

Room: Harkness Hall 329

University of Rochester Spring 2021

Instructor: Scott A. Tyson

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Office Hours:

Course Description: Implicit in all research designs are (traditionally underappreciated) strategic interactions relevant to the interpretation and validity of empirical work. Recently, social scientists across several sub-disciplines, and especially political scientists, have begun to analyze these theoretical implications of empirical models (TIEM). This course surveys the work being done in this nascent field of scholarship and, necessarily, the dominant empirical methodologies employed in political science and economics. For context and guidance, we will also draw upon work from adjacent lines of research, such as the decision-theoretic underpinnings of empirical models, the rationalization of behavioral regularities, and the evolutionary grounding of preferences, as well as upon philosophical perspectives on the interplay between theory and empirics.

Prerequisites: A familiarity with Nash equilibrium, Perfect Bayesian equilibrium, the potential outcome framework, as well as key concepts of research design such as the selection and use of an instrument will be helpful but is not required.

Structure of the Course: Each week will be comprised of 1-3 presentations from students based on the weeks assigned readings. I suggest that students work out which papers they might find most helpful and then seek out other students with a similar interest.

There will also be a final project comprised of the proposal of a research paper. I do not necessarily expect every student to complete a fully polished research paper by the end of the course. I do, however, expect students to be able to complete a detailed, yet brief (about 20 pages), proposal of a research project. For example, the student might present an argument in words, situate their argument within the existing literature, provide a detailed description of their empirical strategy or model, and finally, describe how their potential findings would contribute to the literature.

Grades: Your grade in the course will ultimately be determined by performance in (1) class presentations, (2) class discussions, and (3) a final project. The grading scheme is as follows:

Presentations (35%)

Class Discussion (25%)

Final project (40%)

Books: There are two required books for this course:

- Hacking, I. (1983). *Representing and intervening: Introductory topics in the philosophy of natural science.* Cambridge university press

- Guala, F. (2005). *The methodology of experimental economics*. Cambridge University Press,

Schedule:

- Background (February 3, 2021):
  (a) Game Theory: Gibbons, R. (1997). An introduction to applicable game theory. 11(1):127–149
  (b) Research Design: Angrist, J. D. and Krueger, A. B. (1999). Empirical strategies in labor economics. *Handbook of labor economics*, 3:1277–1366, Angrist, J. D. and Pischke, J.-S. (2008). *Mostly harmless econometrics: An empiricist's companion*. Princeton university press
- Philosophical Background (February 10, 2021):
  (a) Quine, W. V. (1951). Main trends in recent philosophy: Two dogmas of empiricism. *The philosophical review*, pages 20–43
  (b) Frege, G. (1950). *The foundations of arithmetic: A logico-mathematical enquiry into the concept of number*. Harpers
- Philosophy of Science (February 17, 2021):
  (a) Hacking, I. (1983). *Representing and intervening: Introductory topics in the philosophy of natural science*. Cambridge university press
  (b) Giere, R. N. (2010). *Scientific perspectivism*. University of Chicago Press
- Scientific Realism (February 24, 2021):
  (a) Van Fraassen, B. C. et al. (1980). *The scientific image*. Oxford University Press, Ch. 2
  (b) Abbott, A. (1988). Transcending general linear reality. *Sociological theory*, pages 169–186
- Game Theory (March 3, 2021):
  (a) Rubinstein, A. (1991). Comments on the interpretation of game theory. *Econometrica: Journal of the Econometric Society*, pages 909–924
  (b) Rubinstein, A. (2006). Dilemmas of an economic theorist. *Econometrica*, pages 865–883
- What are Models? (March 10, 2021):
  (a) Haavelmo, T. (1944). The probability approach in econometrics. *Econometrica: Journal of the Econometric Society*, pages iii–115
  (b) Giere, R. N. (2004). How models are used to represent reality. *Philosophy of science*, 71(5):742–752
  (c) Johnson, J. (2014). Models among the political theorists. *American Journal of Political Science*, 58(3):547–560

(d) Johnson, J. (2019). Formal models in political science: Conceptual, not empirical

- Causality (March 17, 2021):

  (a) Mackie, J. L. (1965). Causes and conditions. *American philosophical quarterly*, 2(4):245–264

  (b) Holland, P. W. (1986). Statistics and causal inference. *Journal of the American statistical Association*, 81(396):945–960

  (c) Imbens, G. W. and Angrist, J. D. (1994). Identification and estimation of local average treatment effects. *Econometrica: Journal of the Econometric Society*, pages 467–475

  (d) Koopmans, T. C. and Reiersol, O. (1950). The identification of structural characteristics. *The Annals of Mathematical Statistics*, 21(2):165–181

  (a) Guala, F. (2005). *The methodology of experimental economics*. Cambridge University Press, Part I

  (b) Samii, C. (2016). Causal empiricism in quantitative research. *The Journal of Politics*, 78(3):941–955

- Theory & Experimentalism (March 31, 2021):

  (a) Ashworth, S., Berry, C., and De Mesquita, E. B. (2015). All else equal in theory and data (big or small). *PS: Political Science and Politics*, 48(1):89–94

  (b) Paine, J. and Tyson, S. A. (2020). Uses and abuses of formal models in political science. In *The SAGE Handbook of Political Science*, pages 188–. SAGE

  (c) Healy, K. (2017). Fuck nuance. *Sociological Theory*, 35(2):118–127

- External Validity (April 7, 2021):

  (a) Guala, F. (2005). *The methodology of experimental economics*. Cambridge University Press, Part II

  (b) Collins, H. (1992). *Changing order: Replication and induction in scientific practice*. University of Chicago Press

  (c) Findley, M. G., Kikuta, K., and Denly, M. (2020). External validity

  (d) Deaton, A. (2010). Instruments, randomization, and learning about development. *Journal of economic literature*, 48(2):424–55

- Structuralism (April 14, 2021):

  (a) Goldberger, A. S. (1972). Structural equation methods in the social sciences. *Econometrica: Journal of the Econometric Society*, pages 979–1001

  (b) Bowden, R. (1973). The theory of parametric identification. *Econometrica: Journal of the Econometric Society*, pages 1069–1074

(c) Angrist, J. D., Imbens, G. W., and Rubin, D. B. (1996). Identification of causal effects using instrumental variables. *Journal of the American statistical Association*, 91(434):444–455

- Commensurability (April 21, 2021):

  (a) Bueno de Mesquita, E. and Tyson, S. A. (2020). The commensurability problem: Conceptual difficulties in estimating the effect of behavior on behavior. *American Political Science Review*, 114(2):375–391

  (b) Abramson, S. F., Koçak, K., and Magazinnik, A. (2019). What do we learn about voter preferences from conjoint experiments? *Unpublished manuscript*

  (c) Slough, T. (2019). On theory and identification: When and why we need theory for causal identification

- TIEM in papers (April 28, 2021):

  (a) Gartzke, E. (1999). War is in the error term. *International Organization*, pages 567–587

  (b) Munger, K. (2019). Knowledge decays: Temporal validity and social science in a changing world

  (c) Gordon, S. C. and Simpson, H. K. (2020). Causes, theories, and the past in political science. *Public choice*, 185(3):315–333

  (d) Wilke, A. and Humphreys, M. (2020). Field experiments, theory, and external validity

  (e) Tomasi, A. (2020). Machiavellian fair play: Electoral incentives to implement programmatic transfers. *Available at SSRN 3646289*

- TBD (May 5, 2021):

Accommodations for Students with Disabilities: If you think you need an accommodation for a disability, please let me know at your earliest convenience. Some aspects of this course, the assignments, the in-class activities, and the way the course is usually taught may be modified to facilitate your participation and progress. As soon as you make me aware of your needs, we can work with the Services for Students with Disabilities (SSD) office to help us determine appropriate academic accommodations. SSD (734-763-3000; http://ssd.umich.edu) typically recommends accommodations through a Verified Individualized Services and Accommodations (VISA) form. Any information you provide is private and confidential and will be treated as such.

Religious and Academic Conflicts: Although the University of Michigan, as an institution, does not observe religious holidays, it has long been the University's policy that every reasonable effort should be made to help students avoid negative academic consequences when their religious obligations conflict with academic requirements. Absence from classes or examinations for religious reasons does not relieve students from responsibility for any part of the course work required during the period of absence. Students who expect to miss classes, examinations, or other assignments as a consequence of their religious observance

shall be provided with a reasonable alternative opportunity to complete such academic responsibilities.

It is the obligation of students to provide faculty with reasonable notice of the dates of religious holidays on which they will be absent. Such notice must be given by the drop/add deadline of the given term. Students who are absent on days of examinations or class assignments shall be offered an opportunity to make up the work, without penalty, unless it can be demonstrated that a make-up opportunity would interfere unreasonably with the delivery of the course. Should disagreement arise over any aspect of this policy, the parties involved should contact the Director of Undergraduate Studies/Director of Graduate Studies. Final appeals will be resolved by the Provost.

Students Representing the University of Michigan: There may be instances when students must miss class due to their commitment to officially represent the University. These students may be involved in the performing arts, scientific or artistic endeavors, or intercollegiate athletics. Absence from classes while representing the University does not relieve students from responsibility for any part of the course missed during the period of absence. Students should provide reasonable notice for dates of anticipated absences and submit an individualized class excuse form.

Student Mental Health and Wellbeing: University of Michigan is committed to advancing the mental health and wellbeing of its students. If you or someone you know is feeling overwhelmed, depressed, and/or in need of support, services are available. For help, contact Counseling and Psychological Services (CAPS) at (734) 764-8312 and https://caps.umich.edu/ during and after hours, on weekends and holidays, or through its counselors physically located in schools on both North and Central Campus. You may also consult University Health Service (UHS) at (734) 764-8320 and https://www.uhs.umich.edu/mentalhealthsvcs, or for alcohol or drug concerns, see www.uhs.umich.edu/aodresources.

For a listing of other mental health resources available on and off campus, visit: http://umich.edu/~mhealth/.

Academic Integrity: The LSA undergraduate academic community, like all communities, functions best when its members treat one another with honesty, fairness, respect, and trust. The College holds all members of its community to high standards of scholarship and integrity. To accomplish its mission of providing an optimal educational environment and developing leaders of society, the College promotes the assumption of personal responsibility and integrity and prohibits all forms of academic dishonesty and misconduct. Academic dishonesty may be understood as any action or attempted action that may result in creating an unfair academic advantage for oneself or an unfair academic advantage or disadvantage for any other member or members of the academic community. Conduct, without regard to motive, that violates the academic integrity and ethical standards of the College community cannot be tolerated. The College seeks vigorously to achieve compliance with its community standards of academic integrity. Violations of the standards will not be tolerated and will result in serious consequences and disciplinary action.

Grade Grievances: If you believe a grade you have received is unfair or in error, you will need to do the following:

1. Wait 24 hours after receiving the grade before approaching your instructor.

2. Provide an explanation in writing for why the grade you received was unfair or in error.

3. If you believe the instructor's response fails to address your claim of unfairness or error, you may petition the department's Director of Undergraduate Studies at the latest within the first five weeks of classes following the completion of the course. You must convey in writing the basis for the complaint, with specific evidence in support of the argument that the grade either was given in error or was unfairly determined. This formal complaint also should summarize the outcome of the initial inquiry to the course instructor, indicating which aspects are in dispute. Within three weeks of the receipt of the petition, the DUS will determine whether to convene the Undergraduate Affairs Committee, the student, and the instructor(s) for a formal hearing. Further details on this process are included on the department website under Advising → Contesting a Grade.