

## POS 604: Polimetrics II

### Contact Information:

Dr. Reed M Wood

Office: 6664 Coor Hall

Email: [Reed.Wood@asu.edu](mailto:Reed.Wood@asu.edu)

Class Hours: Th: 9:00-11:30 PM

Office Hours: Th: 12:30-2:30 PM

### Course Description

This course is a continuation of Polimetrics I. It is intended to expose student to a variety of maximum likelihood estimation (MLE) methods. The course will introduce models for binary outcomes, count data, discrete and ordered categorical outcomes, and duration analysis. It also introduces students to a number of (increasingly) common techniques for identifying causal relationships using observational data such as instrumental variables approaches, matching methods, difference-in-difference, and quasi-natural experiments.

The primary goal of this course is to teach students the intuition behind these methods and how to appropriately utilize them in empirical analyses of social science data, including the interpretation and presentation of results in scholarly publications. While this is largely an applied econometrics course, it is nonetheless necessary to devote some attention to the theory motivating these techniques and to the mechanics of the models (e.g., the “math” behind it all). Successful completion of Polimetrics I or a similar econometrics course covering multivariate regression analysis is a prerequisite for this course.

### Course Requirements

Homework: 25%

Attendance and Participation: 15%

Analysis and Interpretation Paper: 25%

Final Paper: 35%

### Required Books:

Angrist, Joshua and Jorn-Steffen Pischke. 2009. *Most Harmless Econometrics: An Empiricist's Companion* Princeton, NJ: Princeton University Press (available online from ASU library)

Box-Steffensmeier, Janet and Brad Jones. 2004. *Event History Modeling* New York, NY: Cambridge University Press (available online from ASU library)

King, Gary. 1998. *Unifying Political Methodology*. Ann Arbor, MI: University of Michigan Press (available online from ASU library)

Long, Scott. 1997. *Regression Models for Categorical and Limited Dependent Variables* Thousand Oaks, CA: Sage

Pampel, Fred. 2000. *Logistic Regression: A Primer* Newbury Park, CA: Sage (available online from ASU library)

**Recommended:**

Cameron, Colin and Pravin Trivedi. 2005. *Microeconometrics: Methods and Applications* New York, NY: Cambridge University Press (available online from ASU library)

Eliason, Scott. 1993. *Maximum Likelihood Estimation: Logic and Practice* Newbury Park, CA: Sage (available online from ASU library)

Gill, Jeff. 2006. *Essential Mathematics for Political and Social Science Research* New York, NY: Cambridge University Press.

UCLA Institute for Digital Research and Education Website: <https://stats.idre.ucla.edu/>

**Required Software:**

Stata 15 <https://www.stata.com/>

**Tentative Schedule:**

**Part 1: Maximum Likelihood**

**8/16 Introduction and review of OLS & Stata Basics**

\*Beck, Nathaniel L. 2000. "Political Methodology: A Welcoming Discipline." *Journal of the American Statistical Association* 95(450): 651-654

\*King, Chpts 1

\*Long, Chpts 1 & 2

**8/23 Introduction to Likelihood Inference & Binary Outcomes I**

\*King, Chpts. 2 & 3

\*Long, Chpt 3

\*Pampel, Chpts 1 & 2

**8/30 APSA Meeting (no class)**

## 9/6 Binary Outcomes II

\*King, Chpt. 4-5.3, 6.1-2

\*Long, Chpt 4

\*Williams, Richard. 2012. "Using the Margins Command to Estimate and Interpret Adjusted Predictions and Marginal Effects." *Stata Journal* 12(2): 308-331.

\*Mood, Carina. 2010. "Logistic Regression: Why We Cannot Do What We Think We Can Do, and What We Can Do about It." *European Sociological Review* 26(1): 67-82 (recommended)

\*Salehyan, Idean, Kristian Gleditsch and David Cunningham. 2011. "Explaining External Support for Insurgent Groups." *International Organization* 65(5): 709-744.

## 9/13 Interpreting and Presenting Interaction Effects

\*Berry, William, Matt Golder and Daniel Milton. 2012. "Improving Tests of Theories Positing Interactions." *Journal of Politics* 74(3): 653-671.

\*Brambor, Thomas, William Roberts Clark, and Matt Golder. 2005. "Understanding Interaction Models: Improving Empirical Analyses." *Political Analysis* 14(1): 63-82.

\*Braumoeller, Bear. 2004. "Hypothesis Testing and Multiplicative Interaction Terms." *International Organization* 58(4): 807-820.

\*Rainey, Carlisle. 2016. "Compression and Conditional Effects: A Product Term is Essential When Using Logistic Regression to Test for Interaction." *Political Science Research and Methods* 4(3): 621-639.

\*Braithwaite, Alex. 2010. "Resisting Infection: How State Capacity Conditions Conflict Contagion." *Journal of Peace Research* 47(3): 311-319.

## 9/20 Ordered Dependent Variables

\*Long, Chpt. 5

\*King, Chpt. 5.4

\*Gerber et al. 2011. "Personality Traits and Participation in the Political Process." *Journal of Politics* 73(3):692-706.

\*Cohen, Dara. 2013. "Explaining Rape during Civil War: Cross-national Evidence (1980-2009)", *American Political Science Review* 107(3)

## 9/27 Choice Models

\*Alvarez, Michael and Jonathan Nagler. 1998. "When Politics and Models Collide: Estimating Models of Multiparty Elections." *American Journal of Political Science* 42(1): 55-96.

\*Dow, Jay and James Endersby. 2004. "Multinomial Probit and Multinomial Logit: A Comparison of Choice Models for Voting Research." *Electoral Studies* 23(1): 107-122.

\*Long, Chpt. 6.

\*Cunningham, Kathleen Gallagher. 2013. "Understanding Strategic Choice: The Determinants of Civil War and Nonviolent Campaign in Self-determination Disputes." *Journal of Peace Research* 50(3): 291-304

#### **10/4 Count Models**

\*Gary King. 1989. "Event Count Models for International Relations: Generalizations and Applications." *International Studies Quarterly* 33(2): 123-147.

\*King, Chpts. 5.7-5.10; 9

\*Long, Chpt. 8

\*Zorn, Christopher. 1998. "An Analytical and Empirical Examination of Zero-inflated and Hurdle Poisson Specifications." *Sociological Methods and Research* 26(3): 368-400.

\*Hegre, Håvard, Gudrun Østby, and Clionadh Raleigh. 2009. "Poverty and Civil War Events: A Disaggregated Study of Liberia." *Journal of Conflict Resolution* 53(4): 598-623.

#### **10/11 Durational Models I**

#### **Analysis and Interpretation Paper**

\*Box-Steffensmeier and Jones, Chpts. 1-5

\*Box-Steffensmeier, Janet, Dan Reiter, and Christopher J. W. Zorn. 2003. "Non-proportional Hazards and Event History Analysis in International Relations." *Journal of Conflict Resolution* 47(1): 33-53

\*Carter, David and Curtis Signorino. 2010. "Back to the Future: Modeling Time Dependence in Binary Data." *Political Analysis* 18: 271-292

\*Licht, Amanda. 2011. "Change Comes with Time: Substantive Interpretation on Non-proportional Hazards in Event History Analysis." *Political Analysis* 19(2): 227-243 (recommended)

\*Bush, Sarah. 2011. "International Politics and the Spread of Quotas for Women in Legislatures." *International Organization* 65(1): 103-137.

#### **10/18 Duration Models II: Options for Multiple Outcomes**

\*Box-Steffensmeier and Jones, Chpts. 6-11

\*Goemans, Hein. 2008. Which Way Out? The Manner and Consequences of Losing Office. *Journal of Conflict Resolution*, 53(6): 771-794.

### **Part 2: Causal Inference and Identification**

#### **10/25 The "Causal Inference Revolution" and its Critics**

\*Angrist and Pischke, Chpts. 1-3

\*William Roberts Clark and Matt Golder. 2015. "Big Data, Causal Inference, and Formal Theory: Contradictory Trends in Political Science?" *PS: Political Science and Politics* 48(1): 65-70.

\*Keele, Like. 2015. "The Discipline of Identification." *PS: Political Science and Politics* 48(1): 65-70.

\*Pearl, Judea. 2009. "Causal Inference in Statistics: An Overview." *Statistics Survey* 3: 96-146.

## 11/1 Addressing Endogeneity

\*Angrist and Pischke, Chpt. 4

\*Murray, Michael. 2006. "The Bad, the Weak, and the Ugly: Avoiding the Pitfalls of Instrumental Variables Estimation", unpublished manuscript.

\*Sovey, Allisaon and Donald P. Green. 2011. "Instrumental Variables Estimate in Political Science: A Reader's Guide", *American Journal of Political Science* 55(1): 188-200.

\*Terza, Joseph, Anirban Basu and Paul Rathouz. 2008. "Two-stage Residual Inclusion Estimation: Addressing Endogeneity in Health Econometric Modeling." *Journal of Health Economics* 27(3): 531-543 (recommended)

\*Ritter, Emily and Courtenay Conrad. 2016. "Preventing and Responding to Dissent: The Observational Challenges of Explaining Strategic Repression." *American Political Science Review* 110(1): 85-99.

\*Savun, Burcu and Daniel Tirone. 2011. "Foreign Aid, Democratization and Civil Conflict: How Does Democracy Aid Affect Civil Conflict", *American Journal of Political Science* 55(2): 233-246.

## 11/8 PSSI Meeting (no class)

Paper topics due

## 11/15 Matching Techniques

Final Paper Due

\*Blackwell, Matthew, Stefano Iacus, Gary King, Giuseppe Porro. 2009. "CEM: Coarsened Exact Matching in Stata." *The Stata Journal* 9(4): 524-546.

\*Ho, Daniel, Kosuke Imai, Gary King and Elizabeth Stuart. 2007. "Matching as Nonparametric Pre-processing for Reducing Model Dependence in Causal Inference." *Political Analysis* 15: 199-236.

\*Iacus, Stefano M; Gary King & Giuseppe Porro (2011) "Causal inference without balance checking: Coarsened exact matching." *Political Analysis* 20(1): 1-24.

\*Sekhon, Jasjeet. 2009. "Opiates for the Matches: Matching Methods for Causal Inference." *Annual Review of Political Science* 12: 487-508.

\*Beardsley, Kyle and Nigel Lo. 2014. "Third-Party Conflict Management and the Willingness to Make Concessions", *Journal of Conflict Resolution* 58(2)

\*Dooley, Brendan, Alan Seals and David Skarbek. 2014. "The Effect of Prison Gang Membership on Recidivism", *Journal of Criminal Justice* 42(3)

## 11/22 Thanksgiving Meeting (no class)

## 11/29 Fixed Effects and Difference-in-Difference

\*Angrist and Pischke, Chpt. 5

\*Bell, Andrew and Kelyvn Jones. 2015. "Explaining Fixed Effects: Random Effects Modeling of Time-series Cross-sectional and Panel Data." *Political Science Research and Methods* 3(1): 133-153.

\*Others TBD

\*Lyal, Jason. 2010. "Are Coethnics More Effective Counterinsurgents? Evidence from the Second Chechen War", *American Political Science Review* 104(1).