**PLCY801 Design of Policy Research**

**Spring 2013**

**Instructor**

Douglas Lee Lauen

Assistant Professor of Public Policy

**Office**: 121 Abernethy Hall

**Office hours**: Thurs. 3:30-4:30

**Phone**: (919) 843-5010

**Email**: [dlauen@unc.edu](mailto:dlauen@unc.edu)

**Course meeting time and location:**Mon 2:00-4:50, Hamilton 517

**Course Goals**

Students will

* Develop a foundation of knowledge about drawing causal inferences from experimental and non-experimental quantitative social science research.
* Learn about the identifying assumptions, strengths, and limitations of research designs often used in social science research.
* Understand, interpret, and critique peer-reviewed quantitative social science research published in academic journals.
* Construct quantitative research designs that have a stronger basis for causal inference.

**Prerequisites**

A strong background in multiple linear regression analysis.

**Course Sakai Site**

The course Sakai site has a schedule of topics and pdfs of selected readings (under Resources). Please consult this regularly. Important notices about schedule changes and other operational details will be posted on Sakai. You are responsible for all information on the Sakai and will submit all assignments to it, so please check it several times a week throughout the semester.

**Course Expectations**

Grading will be based on approximately **four** homework assignments (totaling **40%**), **one** final quantitative research design paper (**40%**), **one** class presentation of your final paper (**10%**), and class participation (**10%**). Assignments will be a variety of exercises, article reviews, and in-class presentations. Depending on the size of the class, some assignments may be done in groups.

**Due Dates**

* **January 23, 5 p.m.** – Assignment 1 – Review of Cheng & Hoekstra 2012 Castle Doctrine working paper
* **February 18, 2 p.m.** – Assignment 2 – TBA
* **Feb 25 or March 4 or March 18 or March 25 (2 p.m.)** – Assignment 3
  + Brief presentation and written critique of one empirical article
  + Choose one from the “Applications” section for that day’s assigned reading
  + Sign up for a day and a paper on the Sakai site, under Wiki, “Applications Paper Presentations”
* **April 8 / April 12 / April 15** – presentation days
  + Each student will deliver a 15-minute oral presentation on their research proposal paper
  + Each student will deliver a 10-minute constructive critique and discussion of another student’s research proposal (Assignment 4)
  + **Note: to allow every student to present and discuss one paper, we must schedule an extra class period on April 12, 2:00-4:50 pm.**
* **April 24, 5 p.m.** – quantitative research design paper (15-20 pages double spaced, Times New Roman, 12 point font, 1 inch margins, not including references, tables and figures)
  + Paper will consist of the following sections
    - Introduction framing research question and its significance
    - Literature review
    - Research question(s) and hypotheses
    - Data
    - Research design
    - Analysis methods
    - Preliminary results (optional)
    - Discussion of results (optional)

**Grading**

Graduate student grades at UNC are assigned as follows:

|  |  |
| --- | --- |
| **H** | High Pass - Clear Excellence |
| **P** | Pass - Entirely Satisfactory Graduate Work |
| **L** | Low Pass - Inadequate Graduate Work |
| **F** | Fail |

All assignments will be graded on a four point scale: 1 (fail), 2 (low pass), 3 (pass), 4 (high pass). Scores will be weighted and averaged to create a final grade composite score. Final grades will be awarded based on the following translation of points to grades:

**H** 3.50-4.00

**P** 2.50-3.49

**L** 1.50-2.49

**F** 1.00-1.49

**Grade Appeal Policy**

I take the evaluation and grading of your work very seriously because I know that most of you take the preparation and writing of your work very seriously. If you think you deserve a higher grade on your work, you may write a letter and explain why you would like to appeal the grade.  Before making an appeal, you should review the grading criteria and grading comments and re-read your work with these in mind.  After I receive your letter, I will re-read your work.  Depending on my re-reading, your grade may stay the same, be raised, or be lowered. This system is designed to minimize frivolous grade appeals and to ensure that you have carefully examined and reflected on the quality of your work before deciding to initiate a grade appeal.

**Late Assignments and Extensions**

Points will be subtracted from late assignments at a rate of ten percent of total point value per day. All assignments must be submitted to Sakai for a “date and time stamp.” The late assignment policy will apply to the date and time on which an assignment was received by Sakai. If technical problems prevent you from submitting your first assignment to Sakai, you will receive an automatic grace period of 24 hours provided you also submit documentation that your technical problem was genuine (e.g., a tech support “help ticket.”). No such grace periods will apply to assignments subsequent to the first. You are expected to verify that your assignments have been properly submitted.

If personal or extenuating circumstances prevent you from turning in an assignment on time, please contact me as soon as possible *in advance* of the deadline. Extensions will be handled on a case-by-case basis, but job interviews, work commitments, extracurricular activities, weddings, travel plans, and academic workload issues will not be considered valid reasons for extensions. Serious medical emergencies and other unexpected events, with documented proof, may be grounds for an extension.

**Norms of academic behavior**

The purpose of class time is to enhance your understanding of material covered in the course reading. To state the obvious, to get the most out of these experiences you must come to class prepared and on time, get enough sleep the night before, and avoid any distractions that might hinder your learning. Failing to read outside of class, coming to class late, falling asleep and/or text messaging during class wastes your time, my time, and insults your fellow students. **During class time, therefore, please refrain from using electronic devices (phones, MP3 players, and laptops).** Anyone caught using an electronic device for an inappropriate use during lecture will have the device confiscated for the class period or asked to leave. Anyone caught twice for such an infraction will face further disciplinary action including low marks for class participation.

**Honor Code**

The honor code is on effect in this class and all others at the University. I treat Honor Code violations seriously and urge all students to become familiar with its terms set out at http://instrument.unc.edu. If you have questions, it is your responsibility to ask us about the Code’s application. It is assumed that all exams, written work and assignments submitted by you are in compliance with the requirements of the Honor Code.

**Academic Integrity/Plagiarism**

In order to ensure effective functioning of the Honor System at Carolina, all students are expected to:

1. Conduct all academic work within the letter and spirit of the Honor Code, which prohibits the giving or receiving of unauthorized aid in all academic processes. If unsure about the limits of group work versus individual work on papers and projects, ask the instructor. Do not guess.
2. Consult with faculty and other sources to clarify the meaning of plagiarism; to learn the recognized techniques of proper attribution of sources used in written work; and to identify allowable resource materials or aids to be used during completion of any graded work.
3. Sign a pledge on all graded academic work certifying that no unauthorized assistance has been received or given in the completion of the work.
4. Treat all members of the University community with respect and fairness.
5. Report any instance in which reasonable grounds exist to believe that a student has given or received unauthorized aid in graded work or in other respects violated the Honor Code. Reports should be made to the office of the Student Attorney General.

At UNC, plagiarism is defined as "the deliberate or reckless representation of another's words, thoughts, or ideas as one's own without attribution in connection with submission of academic work, whether graded or otherwise." ([*Instrument of Student Judicial Governance*](http://instrument.unc.edu/)*,* Section II.B.1.). Because it is considered a form of cheating, the Office of the Dean of Students can punish students who plagiarize with course failure and suspension. Full information can be found on the [UNC Honor System](http://honor.unc.edu/) page UNC Writing Center Handout: <http://writingcenter.unc.edu/resources/handouts-demos/citation/plagiarism>)

**Course Texts**

*All have been ordered by UNC Student Stores and are widely available through online vendors*

*Required*

Morgan, S. L., & Winship, C. (2007). *Counterfactuals and causal inference: Methods and principles for social research*: Cambridge University Press.

Murnane, R. J., & Willett, J. B. (2010). *Methods matter: Improving causal inference in educational and social science research*: Oxford University Press, USA.

Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and quasi-experimental designs for generalized causal inference*: Wadsworth Cengage learning.

*Strongly Recommended*

Angrist, J. D., & Pischke, J. S. (2008). *Mostly harmless econometrics: An empiricist's companion*: Princeton University Press.

Firebaugh, G. (2008). *Seven rules for social research*: Princeton University Press.

Wooldridge, J. M. (2009). *Introductory econometrics: A modern approach*: South-Western Pub.

**Course Schedule**

1. **Jan. 14 – Introduction**

Course overview; Aims of research (building theory, testing theory); description; explanation; program evaluation; prediction; causal inference, description, explanation; modes of causal inference (Campbell, threats to validity; Rubin, potential outcomes; econometrics, bias in program evaluation treatment effects)

Murnane and Willett, chapters 1-3

Shadish, Cook, and Campbell, chapter 1

Holland, Paul. 1986. "Statistics and causal inference." *Journal of the American Statistical Association* 81:945-60.

1. **Jan. 21 – Conceptual matters, measurement, and sampling**

**MLK Holiday, no class meeting, but read material and complete assignment**

Choosing a good research question; relevance to social science theory and public policy; the Campbellian validity typology (statistical conclusion, internal, conceptual, external).

Shadish, Cook, Campbell, chapters 2, 3

Firebaugh, chapter 1

Cheng & Hoekstra 2012 “Does Strengthening Self-Defense Law Deter Crime or Escalate Violence? Evidence from Castle Doctrine” working paper.

**Assignment 1. Review and critique Cheng & Hoekstra 2012.**

* Post to Sakai under assignments on Jan 23, 5 pm. No hard copy required.
* Use handout “Guidelines on Reviewing and Critiquing Papers” posted to Sakai under Resources.

1. **Jan. 28 – Causality – theoretical foundations**

Causes and effects; effects of causes; manipulation; causal description versus causal explanation; potential outcomes; average treatment effect (ATE); average treatment effect on the treated (ATT); average treatment effect on the control (ATC); policy evaluation and forecasting.

Morgan & Winship, chapter 2

Shadish William R. (2010) Campbell and Rubin: A Primer and Comparison of Their Approaches to Causal Inference in Field Settings. Psychological Methods 15: 3-17.

Heckman, J. 2005. "The Scientific Model of Causality." Sociological Methodology 35(1): **Excerpt: pp. 1-9 only.**

Pearl, Judea. 2000. *Causality: Models, Reasoning, and Inference*. Cambridge: Cambridge University Press. **Excerpt:** **Epilogue**

1. **Feb. 4 – Directed Acyclic Graphs (DAGs)**

Roots in path and structural equation modeling; direct and indirect paths; mediation; moderation; Pearl’s back door criterion and d-separation.

Morgan & Winship, chapter 3

Pearl, J. 2003. “Statistics and Causal Inference: A Review.” Test Journal 12(2): **Excerpt 281-318 only** (skip discussions).

Greenland, Sander, Judea Pearl, and James M. Robins. 1999. "Causal Diagrams for Epidemiologic Research." Epidemiology 10(1):37-48.

Pearl, Judea. 2000. *Causality: Models, Reasoning, and Inference*. Cambridge: Cambridge University Press. **Excerpt: d-separation without tears.**

*Background Reading*

Pearl, Judea. 2000. *Causality: Models, Reasoning, and Inference*. Cambridge: Cambridge University Press.

Pearl, J. 1995. “Causal Diagrams for Empirical Research.” Biometrika, 82(4):669-710. Read: 669-688.

Greenland, Sander and Babette Brumback. 2002. “An Overview of Relations among Causal Modeling Methods.“ *International Journal of Epidemiology* 31:1030-7.

Hernan, Miguel A., Sonia Hernandez-Diaz, and James M. Robins. 2004. “A Structural Approach to Selection Bias.“ *Epidemiology* 15:615-25.

1. **Feb. 11 – Experiments**

Rationale; strengths; limitations; recruitment; generalizability; compliance; attrition; intent to treat (ITT); cluster randomized trials

Murnane & Willett, chapters 4-7

*Applications*

Pager, Devah. 2003. "The Mark of a Criminal Record." *American Journal of Sociology* 108: 937- 975.

Katz, L.F., Kling, J.R., and Liebman, J.B. (2001) “Moving to Opportunity in Boston: Early Results of a Randomized Mobility Experiment” The Quarterly Journal of Economics 116: 607-654.

*Background*

Berk, R. A. (2005). Randomized experiments as the bronze standard. *Journal of Experimental Criminology, 1*(4), 417-433.

Burtless, G. (1995). "The Case for Randomized Field Trials in Economic and Policy Research." Journal of Economic Perspectives 9: 63-84.

Cook, T. D. (2002). Randomized experiments in educational policy research: A critical examination of the reasons that the educational evaluation community has offered for not doing them. *Educational Evaluation and Policy Analysis, 24*(3), 175-199.

1. **Feb 18. – Naïve regression estimates of causal effects / natural experiments**

Strong assumptions under which standard regression estimates can be considered causal; threats to the validity of naïve regression estimates; selection bias; reverse causation; how to include design elements in studies to improve causal inference; investigator-designed versus “natural” experiments

Gelman, Andrew, and Jennifer Hill. 2007. Data Analysis Using Regression and Multilevel/Hierarchical Models. Cambridge: Cambridge University Press. Chapter 9.

Murnane & Willett, chapter 8

Angrist, J. & Pischike, J-S (2010) The Credibility Revolution in Economics: How Better Research Design is Taking the Con Out of Econometrics. Journal of Economic Perspectives.

Rubin (2008) For objective causal inference, design trumps analysis. The Annals of Applied Statistics 2: 808-840. Read only: pp. 808-815

*Applications*

TBA

*Background*

Meyer, Bruce D. (1995) Natural and quasi-experiments in economics. Journal of Business & Economic Statistics 13, 151-161.

**Assignment 2 Due, 2 p.m. - TBA**

1. **Feb. 25 – Instrumental variables**

Random assignment as the ideal instrument; plausibly exogenous policy change instruments.

Morgan and Winship, chapter 7

Murnane and Willett, chapters 10-11

Angrist, Joshua and Alan B. Krueger. 2001. "Instrumental Variables and the Search for Identification: From Supply and Demand to Natural Experiments." *Journal of Economic Perspectives* 15:69-85.

*Applications*

Angrist, J. 1990. "Lifetime Earnings and the Vietnam Era Draft Lottery: Evidence from Social Security Administrative Records." American Economic Review 80(3): 313-336.

Neal, Derek. 1997. "The effects of Catholic secondary schooling on educational achievement." *Journal of Labor Economics* 11:98-123. *Application of instrumental variables approach.*

1. **March 4 – Interrupted time series / regression discontinuity**

Policy changes that induce changes over time; time series analysis; comparative time series analysis; assignment to treatment based on a continuous variable with a threshold

Shadish, Cook, and Campbell, chapter 6-7

Murnane and Willett, chapter 9

*Applications*

Dee, T., & Jacob, B. (2009).The impact of No Child Left Behind on student achievement.

Gormley, W.T., Phillips, D., & Gayer, T. (2008) Preschool programs can boost school readiness. Science 320: 1723-1724.

*Background*

Imbens, G.W. & Lemieux, T. (2007) Regression discontinuity designs: a guide to practice. Journal of Econometrics

**\*\*\* Spring Break \*\*\***

1. **March 18 – Difference-in-differences / fixed effects**

Pooled cross sectional analysis; panel data techniques; policy changes that create plausible treatment and control groups; using subjects as their own controls; using differencing to remove some kinds of confounding

Wooldridge 13-15 (review)… specific sections TBA…

Angrist & Pishke, 5

Shadish, Cook, and Campbell, chapter 5

Todd, P.E. & Wolpin, K.I. (2003) On the specification and estimation of the production function for cognitive achievement. The Economic Journal 113.

*Applications*

Card, D. & Kreuger, A. B. (1994). Minimum wages and employment: A case study of the fast-food industry in New Jersey and Pennsylvania. *American Economic Review, 84*(4), 772-793.

Budig, M. J., & England, P. (2001).The wage penalty for motherhood. *American Sociological Review, 66*(2), 204-225.

1. **March 25 – Propensity scores**

Matching, stratification, weighting.

Morgan & Winship, chapter 4

Murnane & Willett 12

Rosenbaum, P., & Rubin, D. (1983). The central role of the propensity score in observational studies for causal effects. *Biometrika, 70*(1), 41-55.

*Applications*

Harding, D. J. (2003). Counterfactual models of neighborhood effects: The effect of neighborhood poverty on dropping out and teenage pregnancy. *American Journal of Sociology, 109*(3), 676-719.

Bingenheimer, J.B., Brennan, R.T., and Earls, F.J. (2005) "Firearm violence exposure and serious violent behavior" Science 308: 1323-1326

1. **April 1 – Within-study comparisons**

Under what conditions do non-experimental estimates closely reproduce experimental ones?

Cook, T. D., Shadish, W. R., & Wong, V. C. (2008). Three Conditions under Which Experiments and Observational Studies Produce Comparable Causal Estimates: New Findings from within-Study Comparisons. *Journal of Policy Analysis and Management, 27*(4), 724-750.

Other reading TBA

*Background*

LaLonde, Robert J. 1986. "Evaluating the econometric evaluations of training programs with experimental data." *American Economic Review* 76:604-620.

Dehejia and Wahba. (1999). "Causal Effects in Nonexperimental Studies: Reevaluating the Evaluation of Training Programs." Journal of the American Statistical Association 1053-62.

Dehejia, R. H., & Wahba, S. (2002). Propensity score-matching methods for nonexperimental causal studies. *Review of Economics and statistics*, *84*(1), 151-161.

William R. Shadish, M. H. Clark, and Peter M. Steiner Can Nonrandomized Experiments Yield Accurate Answers? A Randomized Experiment Comparing Random and Nonrandom Assignments. JASA 103: 1334-

1. **April 8 – Student presentations of research projects / proposals**
2. **April 12 – Student presentations of research projects / proposals**
   * Extra class session to accommodate all student presentations
   * Class will meet 2:00-4:50, room TBA
3. **April 15 – Student presentations of research projects / proposals**
4. **April 22 – Puzzles, questions, aims of research revisited**

Method as servant not master; summary of strengths and weaknesses of causal inference theory and methods; other modes of social scientific explanation

Murnane & Willett 13

Shadish, Cook, and Campbell, chapter 11

Other readings TBA

**April 24, Final Paper Due, 5 p.m.**

Hard copy delivered to my office (Abernethy Hall Rm 121)

Also upload an electronic copy to Sakai as a backup