Please note: this course is still under development. The final version of the syllabus will be available on the first day of class.

Professor
Paul A. Jargowsky, Ph.D.
856-225-2729; 321 Cooper St.; paul.jargowsky@rutgers.edu
Office Hours: TBA

Teaching Assistant
Zach Wood

Overview
Research in the social sciences is a process of developing evidence to generate and test hypotheses. To draw causal inferences about variables of interest, the effects of confounding variables must be controlled. Research design refers to techniques for organizing the research process to control for confounding variables in the process of data collection and development, rather than doing so after-the-fact through the use of statistical techniques. It also refers to a variety of statistical techniques that make creative use of existing data to sharpen causal inferences.

A thorough understanding of research design is crucial to conducting high quality research and to assessing the limitations of existing research studies. This course is intended to be of value both to those who will go on to conduct their own research in their chosen fields and to those who intend to use/evaluate the findings of research conducted by others. Topics covered include: (1) experimental designs; (2) non-experimental designs; (3) sampling methodologies; (4) measurement techniques; (5) model specification in relation to research design; (5) qualitative methods; (6) quantitative methods; and (7) internal and external validity.

Prerequisites
To succeed in this class, you should have already taken Quantitative Methods I (824:702, or an equivalent class in descriptive and inferential statistics) and Quantitative Methods II (824:709, or an equivalent class in multiple regression analysis). The latter may be taken concurrently, if
necessary, but this is not preferred. You should also have taken the Logic of Social Inquiry (824:703), which covers the philosophical foundations of social science research and introduces a number of issues and research designs considered here. In comparison to that course, this class contains more of the nuts and bolts of how and when to employ different research designs.

**Required Texts**
Most classes will focus on chapters in these two books, supplemented by other readings that will be available on Sakai:


**Optional Text**
This text is quite mathematical, but you may be able to get a lot out of it even if you don’t quite follow all the math. It is particularly useful for persons with a background in economics who desire to do quantitative research using state of the art econometric techniques.


**Grading and Assignments**
There are four primary assignments in the course.

- Each week, you will write a summary of one of the readings. That summary should be no more than a page and include 1) the main points made by the reading and 2) the questions, comments, or problems that you have about the reading.
- Once or twice during the semester (depending on the number of students enrolled), you will lead the class in discussing one of the readings.
- You will write a critique of a published research article (from a list I will provide), summarizing the question addressed and the research design employed, and then critiquing the research design and the validity of the study’s conclusions. This assignment will be 5-10 pages.
- A final assignment is a research design of a question that interests you of 15 to 25 pages, including a statement of the problem to be addressed, a literature review, and a section on data and methods. You do not need to show results. Drafts of each section will be due at different points in the semester, on which you will receive feedback. The final grade will be based on the final version that you turn in at the end of the semester. Time permitting, you will be asked to present your proposal to the class.
The research design assignment could serve as the basis for development of a dissertation proposal, but it does not need to be. Ultimately, you will develop your dissertation proposal in consultation with the chair and members of your doctoral committee. However, this assignment is certainly good practice for developing a dissertation proposal, whether or not you retain the same topic and/or research design when you move to the dissertation stage of your graduate career.

Grades will be determined as follows:

- Reading summaries: 20%
- Leading class discussion(s): 20%
- Journal article critique: 10%
- Research design (breakdown below): 40%
  - Statement of the Problem 10%
  - Literature review 15%
  - Data and Methods 15%
- Attendance and participation: 10%

**Outline of Topics**
The following is a preliminary outline of topics to be covered in the class. Exact dates for each topic, additional readings, and assignment due dates will be posted in the online schedule on Sakai. Readings are likely to be modified as we get into the class and I learn more about your skills and interests so *do not rely on this version of the syllabus*; always refer to the “live” schedule which will be posted and updated online.

**Introduction**

- Correlation and Causation
  - Murnane and Willett, Chapter 3
- Alternative Methods of Control: Overview
  - Shadish, Cook, and Campbell, Chapter 1
  - (optional) Angrist and Pischke, Chapter 2

**Techniques and Tools**

- The elements of research (review, these should already be familiar):
  - level of measurement
  - data structures
  - units of analysis
  - dependent and independent variables
  - descriptive statistics
  - inferential statistics and tests of hypotheses
- Index and scale construction
Sampling Techniques
- Simple Random
- Stratified Sampling
- Multi-Stage Cluster Sampling

Survey Research
- Questionnaire Construction
- Survey Administration
- Online options to reduce cost? Implications and Challenges of that choice?
- Reviewing the Literature

Qualitative Methods
- Ethnography
- Participant Observation
- Case Studies
- Principles of Field Work
- Structured Interviews

Shaping the Data: Alternative Designs

- The Gold Standard: Experiments
  - Murnane and Willett, Chapter 4
  - Shadish, Cook, and Campbell, Chapter 8
- Fool’s Gold: Threats to Internal and External Validity
  - Murnane and Willett, Chapter 5
  - Shadish, Cook, and Campbell, Chapter 2-3
- Statistical Power
  - Murnane and Willett, Chapter 6-7
- Quasi-Experiments
  - Shadish, Cook, and Campbell, Chapters 4-5
- Natural Experiments
  - Murnane and Willett, Chapter 8.
  - Paper by Binder (PS job candidate, get from Rich)

Panel Data Designs
- Finkel, Causal Analysis with Panel Data, pp. 3-21.
- Murnane and Willett, Chapter 7
- (optional) Angrist and Pischke, Chapter 5

Interrupted Time Series
- Shadish, Cook, and Campbell, Chapter 6

Regression Discontinuity
- Murnane and Willett, Chapter 9
- Shadish, Cook, and Campbell, Chapter 7
- (optional) Angrist and Pischke, Chapter 6

Instrumental Variables
- Murnane and Willett, Chapter 10
- (optional) Angrist and Pischke, Chapter 4

Propensity Score Matching
- Murnane and Willett, Chapter 12

Overarching Issues

Ethics in Research
- Shadish, Cook, and Campbell, Chapter 9

Choosing among Research Methods and Designs

Revisiting Significance vs. Importance