Introduction

This class will provide graduate students with an introduction to the scientific method and an overview of how to apply it to the study of politics. Students will learn the fundamentals of the scientific method and, through research design, how to improve both causal inference and the measurement of political phenomena.

Required Reading Material


4. Additional articles and chapters are listed below. Copies of these readings will be provided by the instructor.

Class Expectations and Grades

- Read all of the assigned materials and be prepared to discuss each piece at the assigned class meeting.

- There are six 5-page written assignments for the course that are each worth 10% of the final grade. The remaining 40% is for participation in the classroom discussions.

- Laptops will not be allowed during class meetings, so make sure to print out the readings before class.

- Make sure to read the Lecture Readings prior to the beginning of class each Tuesday and the Discussion Readings prior to the beginning of class each Thursday.
Suggested Research Design Books and Other Readings

The books listed here and the other articles and chapters list in the Suggested Readings sections below are useful readings, some of which once existed in either the Lecture Readings or Discussion Readings lists in earlier versions of this syllabus. Don’t worry about reading these now. You should keep them in mind though for future reference because they are useful examples and much more in depth on certain research design topics. These lists are of course not exhaustive and will continue to grow.


Assignments

Due dates appear below in the Schedule of Readings section. Assignments are due at the beginning of the first class in the week of the due date.

1. **Theory Essay**: In no more than 5-double spaced pages, answer the following questions: “What is a theory and what is it good for?”?

2. **Experimental Design**: Take a well known theory of politics and derive a hypothesis that is testable with an experimental design. Describe the theory, hypothesis, and experimental design in no more than 5-double spaced pages.

3. **Quasi-Experimental Design**: Take a well known theory of politics and derive a hypothesis that is testable with a quasi-experimental design. Describe the theory, hypothesis, and quasi-experimental design in no more than 5-double spaced pages.

4. **Data Validity Assessment**: Analyze the data provided by the instructor and assess its validity in no more than 5-double spaced pages.

5. **Survey or Case Study Design**: Take a well known theory of politics and derive a hypothesis that is testable with a survey or case study. Describe the theory, hypothesis, and design in no more than 5-double spaced pages.

6. **Group Replication Project**: In groups of 2-4 students, obtain the materials necessary to replicate a political science research paper published in the last 5 years. Describe the initial study and the ease with which the results replicate. Then identify any design flaws in the research and propose a new or improved design. Again, the write-up should be no more than 5-pages. For background information read: King, Gary. 2006. “Publication, Publication.” *PS: Political Science and Politics* 39: 119-125, which is assigned in week 11.

Acknowledgment

This syllabus is based in large part on the Research Design (204A) course developed by David Lake and Mathew McCubbins at the University of California, San Diego.
Schedule of Readings

Week 1: No Class
No class this week because of APSA. We will schedule two extra meetings during finals week so that we do not miss out on any content.

Week 2: Introduction to the Scientific Method and the Philosophy of Science

Lecture Readings:
2. KKV. Ch 1: “The Science in Social Science.”

Discussion Readings:

Week 3: Methods of Observation and Inference

Lecture Readings:
1. KKV. Ch 2: “Descriptive Inference.”
2. KKV. Ch 4: “Determining What to Observe.”

Discussion Readings:
Week 4: Design, Validity, and Disconfirmation

A draft of the Theory Essay assignment is due at the beginning of the first class this week. The final draft is due at the beginning of Week 15.

Lecture Readings:


Discussion Readings:


Suggested Readings:

Week 5: Experimental Design

Lecture Readings:


Discussion Readings:


Suggested Readings:


Week 6: Quasi-Experimental Design: Non-Equivalent Group Designs

The Experimental Design assignment is due at the beginning of the first class this week.

Lecture Readings:


Discussion Readings:


Suggested Readings:


Week 7: Quasi-Experimental Design: Interrupted Time-Series, Regression Discontinuity, Matching, and Instrumental Variable Designs

Lecture Readings:


Discussion Readings:


Suggested Readings:


Week 8: Measurement Theory: Data, Validity, and Reliability

The Quasi-Experimental Design assignment is due at the beginning of the first class this week.

Lecture Readings:


Discussion Readings:


Week 9: Measurement Theory: Sampling and Survey Design

Lecture Readings:

1. Trochim and Donnelly. Ch 2: “Sampling.”

2. Trochim and Donnelly. Ch 4: “Survey Research.”

Discussion Readings:


Suggested Readings:


Week 10: Measurement Theory: Models of Unobservable Constructs

The Data Validity Assessment assignment is due at the beginning of the first class this week.

Lecture Readings:

1. Trochim and Donnelly. Ch 5: “Scales and Indexes.”


Discussion Readings:


Suggested Readings:


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Week 11: Observational Data and Design Choice

Lecture Readings:

1. KKV. Ch 5: “Understanding What to Avoid.”


Discussion Readings:


Suggested Readings:


Week 12: Analysis, Transparency, and the Replication Standard

Lecture Readings:

3. Dunning. Ch. 5: “Simplicity and Transparency: keys to quantitative analysis.”

Discussion Readings:


Suggested Readings:


Week 13: Case Studies and Case Selection

Lecture Readings:


Discussion Readings:


**Suggested Readings:**


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**Week 14: Qualitative Methods and Mixed Methods**

The *Survey or Case Study Design* assignment is due at the beginning of the first class this week.

**Lecture Readings:**

1. Trochim and Donnelly. Ch 6: “Qualitative and Unobtrusive Measures.”

2. Trochim and Donnelly. Ch 8: “Qualitative and Mixed Methods Designs.”

3. Dunning. Ch. 7: “The central role of qualitative evidence.”

**Discussion Readings:**


**Suggested Readings:**


Week 15: The Philosophy of Science Revisited

Lecture Readings:


Discussion Readings:


Suggested Readings:


Week 16: Finding the Research Frontier (Finals Week)

An updated draft of the Theory Essay assignment is due at the beginning of the first class this week. The Group Replication Project assignment is due by the end of week.

Lecture Readings:


Discussion Readings:

*Note:* readings for this week will be assigned to individuals to informally (i.e., no slides) present during the last discussion section.


Academic Dishonesty

The Department of Political Science, along with the College of the Liberal Arts and the University, takes violations of academic dishonesty seriously. Observing basic honesty in one’s work, words, ideas, and actions is a principle to which all members of the community are required to subscribe.

All course work by students is to be done on an individual basis unless an instructor clearly states that an alternative is acceptable. Any reference materials used in the preparation of any assignment must be explicitly cited. Students uncertain about proper citation are responsible for checking with their instructor.

In an examination setting, unless the instructor gives explicit prior instructions to the contrary, whether the examination is in class or take home, violations of academic integrity shall consist but are not limited to any attempt to receive assistance from written or printed aids, or from any person or papers or electronic devices, or of any attempt to give assistance, whether the one so doing has completed his or her own work or not.

Lying to the instructor or purposely misleading any Penn State administrator shall also constitute a violation of academic integrity.

In cases of any violation of academic integrity it is the policy of the Department of Political Science to follow procedures established by the College of the Liberal Arts. More information on academic integrity and procedures followed for violation can be found at: [http://laus.la.psu.edu/current-students/academics/academic-integrity/college-policies](http://laus.la.psu.edu/current-students/academics/academic-integrity/college-policies)

Note to students with disabilities: Penn State welcomes students with disabilities into the University’s educational programs. If you have a disability-related need for reasonable academic adjustments in this course, contact the Office for Disability Services. For further information regarding policies, rights and responsibilities please visit the Office for Disability Services (ODS) Web site at: [www.equity.psu.edu/ods](http://www.equity.psu.edu/ods)

Instructors should be notified as early in the semester as possible regarding the need for reasonable accommodations.