

# Experimental Design (POLS 60843-01)

Professor Erin Rossiter

Spring 2022

## Note on syllabus versions and formatting

Please note any **blue text** is an addition to the syllabus in this version, any crossed out ~~text~~ is a deletion in this version of the syllabus, and any **pink text** is a link.

## 1 Course information

### Location

DeBartolo Hall 336

### Time

Tuesdays 3:30pm - 6:15pm

### Office hours

Tuesdays 6:15pm-7:15pm

Fridays 10:30am-12:30pm

(or by appointment)

2077 Jenkins Nanovic Halls

Per University policy, students are required to wear masks in class and when attending office hours.

## 2 Description

Political scientists across subfields are increasingly using experimental approaches. This course covers the design, implementation, and analysis of experiments. We will discuss both theoretical and practical aspects of experimentation. Core concepts will be applicable across types of experiments, including lab, survey, online, and lab-in-the-field.

## 3 Learning objectives

- The student will be able to identify key threats to causal inference and how to address them by experimental design
- The student will gain a command over key tools for designing and analyzing experiments
- The student will apply key concepts from the course and design an experiment that could be implemented to contribute to the student's research agenda
- The student will practice assessing experimental design choices via simulation of their own original experiment

## 4 Required Materials

We will use one book in this course: *Field Experiments: Design, Analysis, and Interpretation*, by Alan Gerber and Donald Green. It should cost \$40 or less. I strongly recommend you buy the book as it is an invaluable resource.

Any additional readings will be uploaded to Canvas or available online. We will also use R as our statistical software. Please let me know if anything (e.g., cost) is preventing you from acquiring the course materials so I can be of help.

- *Field Experiments: Design, Analysis, and Interpretation*, by Alan Gerber and Donald Green.  
Abbreviation: GG
- Readings posted to Canvas
- R and RStudio software

## 5 Grading Scale

A+	[97-100]%
A	[93-97)%
A-	[90-93)%
B+	[87-90)%
B	[83-87)%
B-	[80-83)%
C+	[77-80)%
C	[73-77)%
C-	[70-73)%
D+	[67-70)%
D	[63-67)%
D-	[60-63)%
F/I	[0-60)%

See the [registrar's explanation](#) of letter grades. There will not be opportunities for extra credit.

## 6 Grade components

### Problem sets 25%

We will have five short problem sets the first five weeks of class, each worth 5% of your grade. While the major goals of the course involve designing and planning the analysis for your own experiment, I strongly believe working through problems yourself (and to do so, carefully reading Gerber and Green textbook!) is a necessary step towards these goals.

**Please note:** the problem sets will be distributed via Canvas by 3pm on Wednesdays to best calibrate the question items to areas needing practice after we have gone through lecture on Tuesdays together. The problem sets will likewise be due by 3pm the following Wednesday. The Wednesday due date also allows us to devote time in class to work through problems together and for students to take advantage of office hours after class.

### Final paper 50%

The final paper will take the form of a pre-analysis plan and simulation using DeclareDesign. I'll simply refer to this as the "final paper." It can focus on any substantive area in political science and propose any kind of experiment. It is strongly recommended that the student proposes an experiment that tests a hypothesis to advance their research agenda.

I do not require a specific word or page count. For some rough guidance, the final paper might spend ~5 pages motivating a research question and hypothesis(es). Then, the bulk of the paper, maybe ~10-15 pages, will detail the design, implementation, and analysis of the experiment. We will talk about pre-registration early in the semester so the student knows the expectations for the written component of the final paper. This component should be a polished piece of writing.

The final paper also requires an assessment of the experimental design choices via simulation using DeclareDesign. The student will not only provide the code and numeric results of the simulation, but they will provide written annotations to explain how they are representing their design choices in code and an interpretation of the results.

In all, the final paper is an opportunity for the student to be confident in their design choices such that they could field the experiment immediately following the course if the implementation was likewise prepared (IRB approval, funding, participants, etc.).

## Final presentation 25%

I strongly believe that presenting your work verbally, as it requires a different type of communication than writing, requires you to clarify your own thinking and logic. It follows that both your project and paper will improve after crafting a presentation. This has been my experience.

Each student will have 10-15 minutes to present their final paper with slides and 10-15 minutes for Q&A from peers. The presentations will be held the final day of class. We will discuss more details of the final presentation at a later date.

## 7 Email Policy

I encourage you to email me questions and comments! I will usually respond to emails within 24 hours, except for weekends and holidays. I ask that you double check that any question sent via email can not be answered by the syllabus. If you expect your question requires more than a short paragraph response, please come to office hours or make an appointment with me to discuss. I may ask you to come to office hours to discuss if I deem the email requires more than a short paragraph response.

## 8 Course Communication & Canvas

I will post all readings on Canvas and you will submit all assignments via Canvas, but I will send important course information via Email.

## 9 Privacy Practices

This course is a community built on trust. In order to create the most effective learning experience, our interactions, discussions, and course activities must remain private and free from external intrusion. As members of this course community, we have obligations to each other to preserve privacy through the following practices:

- Course materials (videos, assignments, readings, etc.) are for use in this course only. You may not upload them to external sites, share with students outside of this course, or post them for public commentary without my written permission.
- In our discussions, some of us may volunteer sensitive personal information. Do not share others' personal information on sensitive topics outside of our course community. Student work, discussion posts, and all other forms of student information related to this course are private.
- If we must transition to Zoom at some point, I plan to record class meetings. These recordings will be available for review through Canvas. I ask that the only recordings made of our class meetings are the ones I am making on Zoom for educational purposes.

## 10 Academic Integrity

I expect that students take academic integrity seriously. Instances of cheating, plagiarism, or other forms of academic dishonesty will be reported. In particular for this course, students should take great care in their written work to attribute others' ideas and words to the original source. For example, students should cite all sources, including citing direct quotations, from any book read in class or any material from the Internet. We will review what does and does not constitute plagiarism in class. However, all students are responsible for familiarizing themselves with the **Honor Code** on the University's website and pledge to observe its provisions in all written and oral work, including oral presentations, quizzes and exams, and all drafts and final versions of essays.

A note on problems sets: Students are encourage to work together, consult online materials, etc. to work through the problems sets. For example, code you find on Stack Overflow may be very helpful to accomplishing the learning

goals of an assignment. However, copy/paste from other students' assignments is not allowed, and copy/paste from the Internet is strongly discouraged, even with proper attribution. Instead, when working together or consulting online resources, **each key stroke should be your own.**

## 11 Statement on inclusiveness

I expect that students are committed to and strive to maintain a positive learning environment based on open communication, mutual respect, and non-discrimination. In this class we will not discriminate on the basis of race, gender, sex, age, economic class, disability, veteran status, religion, sexual orientation, color, or national origin. Any suggestions as to how to further such a positive and open environment will be appreciated and given serious consideration.

## 12 Title IX: Confidentiality and Responsible Employee Statement

Notre Dame faculty are committed to helping create a safe and open learning environment for all students. If you (or someone you know) have experienced any form of sexual misconduct, including sexual assault, dating or domestic violence, or stalking, know that help and support are available.

I am available to discuss concerns. Please know that information shared with me regarding alleged sexual assault, sexual misconduct, dating violence, domestic violence, stalking, or conduct that creates a hostile environment will be reported to the University's Title IX Coordinator or Deputy Title IX Coordinator to investigate as I am a mandatory reporter.

If you wish to speak to a confidential employee who does not have this reporting responsibility, you can contact counseling, medical, or pastoral resources. Please see the [Title IX website](#) for more information, including phone numbers and hotlines, about reporting options and resources at Notre Dame and in the community.

## 13 Statement on Covid-19

I will alert you to any possible changes in course requirements, including course format changes, in response to Notre Dame's decisions about community safety during the semester.

At the start of the semester, the current University policy requires masks in class and office hours.

Students will not be penalized for having to self-quarantine or self-isolate given Covid-19. Course materials and assignments will be available for completion in an alternative modality if needed.

## 14 Mental Health Statement

Diminished mental health, including significant stress, mood changes, excessive worry, or problems with eating and/or sleeping can interfere with optimal academic performance. The source of symptoms might be strictly related to your course work; if so, please speak with me. However, non-academic parts of life, like problems with relationships, family worries, loss, or a personal struggle or crisis, can also contribute to decreased academic performance.

Notre Dame provides mental health services to support the academic success of students. In the event I suspect you need additional support, I will express my concerns and the reasons for them, and remind you of resources that might be helpful to you. It is not my intention to know the details of what might be bothering you, but simply to let you know I am concerned and that help, if needed, is available.

The University Counseling Center (UCC) provides cost-free and confidential mental health services to help you manage personal challenges that threaten your emotional or academic well-being.

Remember, getting help is a smart and courageous thing to do — for yourself and for those who care about you. For more resources please see [ucc.nd.edu](http://ucc.nd.edu) or [care.nd.edu](http://care.nd.edu).

The UCC is located on the third floor of Saint Liam Hall  
Hours: Monday-Friday 8:30am - 5:00pm  
Urgent Crisis Line 24/7: 574-631-7336

## 15 Accommodations for Disabled Students

Notre Dame supports the rights of enrolled students to a full and equal educational opportunity and, in compliance with federal, state, and local requirements, and is committed to reasonable accommodations for individuals with documented disabilities.

Students for whom accommodations may be necessary must be registered with, and provide their instructors official notification, through [Sara Bea Accessibility Services](#). I work with students and Sara Bea Accessibility Services to ensure that students with documented disabilities have the resources that they need to be successful.

Please speak with me as soon as possible regarding accommodations. Students who are not registered should contact the Office of Disability Services as soon as possible since accommodation typically needs to be arranged well in advance.

## 16 Religious and Cultural Observance Accommodations

Student with a conflict between an academic requirement and a religious or cultural observance should notify me within the first three weeks of class of the specific dates in order to schedule a make-up activity. I strongly encourage you to honor your religious holidays and cultural practices! However, if I do not hear from you within the first three weeks of class, I will assume you plan to attend all class meetings and can participate in all activities.

## 17 Preferred Names and Gender Inclusive Pronouns

In order to affirm each persons gender identity and lived experiences, I may ask about preferred pronouns.

## 18 Syllabus Change Policy

Except for changes that substantially affect implementation of the evaluation (grading) statement, this syllabus is a guide for the course and is subject to change with advance notice.

## 19 Schedule

Note: I relied heavily on [Graeme Blair's](#) experimental design syllabus in choosing the structure, themes, and readings for this course. His syllabus is [here](#).

### Day01: Tues, January 11

Introductions, course goals, syllabus, set up

- Reading: nothing
- Due: Qualtrics survey

### Day02: Tues, January 18

Why experiment?

- Reading: GG chs. 1-2
- Due: HW1

### Day03: Tues, January 25

Random assignment procedures

- Reading: GG ch. 3
- Due: HW2

### Day04: Tues, February 1

Analyzing experimental data

- Reading: GG ch. 4
- Due: HW3

### Day05: Tues, February 8

Diagnosing experimental designs

- Reading: *Research Design: Declaration, Diagnosis, Redesign*, by Graeme Blair, Alexander Coppock, and Macartan Humphreys. chs. 1-4 (read carefully), chs. 5-10 (skim)
- Due: HW4, including one-pager on research topic, question, and hypothesis(es)

### Day06: Tues, February 15

Pre-registration

- Reading:
  - Lula Chen & Chris Grady. [10 Things to Know About Pre-Analysis Plans](#)
  - Daniel Lakens. [Not All Flexibility P-Hacking Is, Young Padawan](#)
  - Tim Ryan. [What is pre-registration for?](#)
  - Alexander Wuttke. [JOP's new pre-registration policy](#)
  - (skim) George Ofori & Daniel Posner. 2021. [Pre-analysis Plans: An Early Stocktaking](#). *Perspectives on Politics*.
  - Find and read two preregistrations on the [EGAP Registry](#) on research in your specific subfield by different scholars. Come ready to share how the insights in the assigned reading play out in the registrations you read.

- Due: HW5

## Day07: Tues, February 22

Ethics in experimentation

- Reading:
  - Ethics guidelines from APSA [here](#)
  - Macartan Humphreys. 2015. “[Reflections on the Ethics of Social Experimentation.](#)” Journal of Globalization and Development.
  - [\(skim\)](#) Tara Slough. 2020. “[The Ethics of Electoral Experimentation: Design-Based Recommendations.](#)” Working paper.
  - Derek Willis. 2015. “[Professors’ Research Project Stirs Political Outrage in Montana.](#)” New York Times.
  - [\(skim, but make sure to read the article Corrections\)](#) Adam Kramer, David Guillory, and Jeffrey Hancock. 2014. “[Experimental evidence of massive-scale emotional contagion through social networks.](#)” Proceedings of the National Academy of Sciences.
- Due: complete CITI training and upload certificate to Canvas

## Day08: Tues, March 1

Theory and experimentation (mediation)

- Reading: GG ch. 10

Heterogeneous treatment effects (moved from Day10)

- Reading: GG ch. 9

**Tues, March 8 – Spring break, no class!**

## Day09: Tues, March 15

Sampling units and generalizability; internal and external validity

- Reading: Erin Hartman. [Generalizing Experimental Results.](#)

## Day10: Tues, March 22

Noncompliance and attrition (Moved from Day11 and Day12)

- Reading: GG ch. 5-7
- Due: first draft of final paper, including simulations

## Day11: Tues, March 29

[Online markets & related issues \(demand effects, manipulation checks, attention checks\)](#)

## Day12: Tues, April 5

[Advanced experimental designs \(conjoint, list, etc.\)](#)

**Note: MPSA is April 7-10**

## Day13: Tues, April 12

Open day in case we adjust the schedule, need extra time on a topic, etc. Let’s tentatively plan on reflecting on the course and discussing opportunities at ND, in the discipline, and beyond academia for graduate students interested

in experiments (EGAP programming, NYU CESS conference, JEPS submissions, demand for experimentation in industry)

### **Day14: Tues, April 19**

Last class! In-class presentations. As noted above, we have enough time so that each student has approximately 30 minutes total, which should include presenting (10-15 min) and engaging with Q&A (10-15 min).

### **~~Day15: Tues, April 26~~**

~~Last class! In-class presentations. As noted above, we have enough time so that each student has approximately 30 minutes total, which should include presenting (10-15 min) and engaging with Q&A (10-15 min).~~

### **Thursday, May 5**

No final exam. Final paper due at noon EST