Research Design

Master in Computational Social Science
Universidad Carlos III de Madrid

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Tuesdays 18h-21h/15h-18h
Room 2.A.04 (Puerta de Toledo)
September 12th - October 24th

1 Description

This course provides an introduction to research design in the social sciences. The goal is to equip students with the skills necessary to evaluate and develop strategies to answer empirical questions with data. We will not cover statistical techniques or advanced data analysis. Rather, our focus will be on the logic of empirical comparison, particularly applied to quantitative data.

2 Requirements

We meet once a week for a total of seven sessions. During the first four weeks, we will review the main topics in research design. Every session will include a lecture followed by a discussion of a research paper. During sessions 5–6 we will have a workshop where students both present in group an ongoing project and comment on each other's projects. Attendance to all sessions is mandatory. During last session we will cover more advance topics, give an overview of the course, and reserve time for questions or to review some topics.

3 Materials

This course does not follow any textbook in particular. However, there are some books that were used to design the course and can be very useful to expand on what is covered in class (books by Huntington-Klein and Cunningham are available online for free):

- Nick Huntington-Klein, *The Effect: An Introduction to Research Design and Causality* (Chapman and Hall/CRC, 2021).
- Kosuke Imai, *Quantiative Social Science: An Introduction* (Princeton UP, 2017).
- Dimiter Toshkov, *Research Design in Political Science* (Palgrave, 2016)
- Scott Cunningham, *Causal Inference: The Mixtape* (Yale University Press, 2021).

4 Assessment

Participation (5%)

Every student is expected to be an active participant in all sessions, asking questions and engaging in discussions, including during the lectures.

Research papers reviews (15%)

In sessions 2–4, we will discuss a research paper in the second half of class. Students are expected to bring in or send before class a short commentary (no summary, just a few discussion points). Each one is 5%.

Workshop presentation (20%)

Sessions 5 and 6 will be a workshop where students present in group an ongoing project, corresponding to their final essay. This project should present a research question that can be answered empirically with quantitative data and a strategy to answer it. Rather than focusing on data analysis, the focus should be on the type of variation that will be exploited and how well it answers the question. All the aspects that we covered in class should be discussed. A potential structure could be:

- Present a topic in general terms, why is it relevant?
- Specific research question
- Empirical strategy:
    - What type of variation is going to be exploited? Unit of analyses
    - Data: source, variables, measurement
    - Empirical comparisons
- External validity: how do the findings travel to other contexts?
- How much more of the original topic we now know?

Workshop feedback (10%)

Student will also comment on each other's project, looking for limitations and possible ways forward.

Final essay (40%)

The main assignment is a written essay developing the research design. This assignment can be thought of as a pre-analysis plan for some study, but there are other options (e.g. compare two different strategies for the same research question).

5   Course outline

Session 1: Introduction to research design

- What is a research design and why do we need it?
- Different types of research
- Research Questions
- Role of theory

Reading:

- Jill Lepore. The Data Delusion. *The New Yorker*, 03/04/2023.

Session 2: Basics of quantitative research

- Qualitative and quantitative data
- Empirical relationships
- Description and explanation
- Concepts, operationalization, and measurement

Reading:

- Carl Müller-Crepon, Philipp Hunziker, and Lars-Erik Cederman. Roads to Rule, Roads to Rebel: Relational State Capacity and Conflict in Africa. *Journal of Conflict Resolution* 65(2–3): 563–590.

Session 3: Understanding causality

Session 4: Causal identification with observational data

Session 5 & 6: Workshop

Session 7: Advanced methods, overview, questions

∗ **Final essay deadline: November 3rd, 23.59h**