Causal Inference Using Machine Learning
Master in Economics
Universidad Nacional de Tucumán
Spring 2024

Instructor: Andres Mena (asmena@face.unt.edu.ar)

Evaluation Criteria

The final grade for this course will be determined based on four assignments:

- Replication Exercise: **20%**

- Midterm Presentation: **10%**

- Final Presentation: **20%**

- Research Proposal: **50%**

Assignment Descriptions

1. Replication Exercise (20%)

The replication exercise involves selecting a paper from a top 5 journal in economics that addresses a causal question of interest. The top five journals are:

- *American Economic Review*

- *Quarterly Journal of Economics*

- *Journal of Political Economy*

- *Econometrica*

- *Review of Economic Studies*

Your task is to replicate the main table or result of interest using the actual code and data provided by the paper. A 2-page document should be submitted, which includes:

- A brief summary of the paper

- The research question of the paper

- Identification strategy used by the authors

- Data description

- Replicated tables or plots produced by you

Deadline: November 20th, 2024

2. Midterm Presentation (10%)

The midterm presentation is a 20-minute presentation where you should prepare slides describing:

- The causal question of interest, clearly identifying the treatment and outcome

- An ideal experiment that, without restrictions on budget, data, or ethical considerations, would allow you to answer the question

- Potential data sources to empirically address the question

- Identification strategy, including methodology and assumptions

- Challenges for implementation

Presentation Date: November 25th, 2024

3. Final Presentation (20%)

The final presentation is an expanded version of your project, including preliminary results, tables, and plots. This will be a 30-minute presentation where you are expected to:

- Present updated research questions and objectives

- Show preliminary empirical results

- Discuss tables and plots that illustrate your findings

- Address any challenges faced and plans to overcome them

Presentation Date: December 19th, 2024

4. Research Proposal (50%)

The research proposal is a 5-page document structured like an academic paper, which should include:

- **Abstract**: A brief summary of the research question and findings

- **Introduction**: Context and motivation for the study

- **Setup**: Description of the theoretical framework or model

- **Identification Strategy**: Detailed methodology and assumptions used to identify causal effects

- **Results**: Presentation of empirical findings

- **Conclusion**: Summary of results and implications

If required, additional plots, tables, or information should be included in the appendix.
Deadline: February 10th, 2025