
Academic Year: (2023 / 2024)**Review date: 15-07-2023**

Department assigned to the subject: Social Sciences Department**Coordinating teacher: LAHDELMA , ILONA ERZSÉBET****Type: Compulsory ECTS Credits : 3.0****Year : 1 Semester : 2**

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

Statistics and Data Science I (19140)
Statistics and Data Science II (19141)

OBJECTIVES

- Ability to describe the logic of causal inference and its application to regression models, distinguishing between causality and correlation.
- Ability to identify common problems of causal interpretation in linear models, as well as to evaluate and justify techniques to solve them.
- Ability to evaluate the validity and robustness of causal inference under a variety of assumptions about data generation.

DESCRIPTION OF CONTENTS: PROGRAMME

1. Why causality? Introduction to the potential outcome frameworks
2. The experimental benchmark
3. Observational data and the experimental benchmark: Matching
4. Quasi-experiments: Regression Discontinuity Designs
5. Quasi-experiments: Instrumental variables
6. Difference-in-differences and panel data
7. Causal inference applied: Policy evaluations

LEARNING ACTIVITIES AND METHODOLOGY

Training Activities:

- Theoretical-practical classes
- Group work
- Individual student work

Teaching Methods:

- Presentations in the professor's lecture room with computer and audiovisual support, in which the main concepts of the subject are developed and a bibliography is provided to complement the students' learning.
- Critical reading of texts recommended by the subject professor: Press articles, reports, manuals and/or

academic articles, either for later discussion in class, or to expand and consolidate knowledge of the subject.

- Resolution of practical cases, problems, etc. raised by the professor, either individually or in a group
- Presentation and discussion in class, under the moderation of the professor, of topics related to the content of the subject, as well as practical case studies.
- Developing pieces of work and reports, individually or in group.

ASSESSMENT SYSTEM

% end-of-term-examination:	0
% of continuous assessment (assignments, laboratory, practicals...):	100

- Individual or group work done during the course (25%)
- Knowledge of the main methods and techniques in computational social sciences (75%)

In the extraordinary call, the evaluation system will be as follows:

- 1) Exam: 100%

BASIC BIBLIOGRAPHY

- Angrist, J. D., Jorn-Steffen Pischke Mostlt Harmless Econometrics, Princeton University Press, 2009
- Guido W. Imbens, Donald B. Rubin Causal inference for Statistics, Social, and Biomedical Sciences: An introduction , Cambridge University Press, 2015
- Nick Huntington-Klein The Effect: An introduction to Research Design and Causality, Chapman and Hall, 2021

ADDITIONAL BIBLIOGRAPHY

- Judea Pearl, Dana MacKenzie The Book of Why, Penguin Random House, 2019
- Scott Cunningham The Causal Inference Mixtape, Yale University Press, 2021

BASIC ELECTRONIC RESOURCES

- Nick Huntington Klein . The Effect: Webpage: <http://https://theeffectbook.net/>
- Scott Cunningham . Tha Causal Inference Mixtape: Website: <http://https://mixtape.scunning.com/index.html>