

Academic Year: (2023 / 2024)

Review date: 15-07-2023

Department assigned to the subject: Social Sciences Department

Coordinating teacher: VILLAMIL FERNANDEZ, FRANCISCO

Type: Compulsory ECTS Credits : 3.0

Year : 1 Semester : 1

OBJECTIVES

- Knowledge of the principles of scientific research.
- Ability to discern among refutation, confirmation and contrastation.
- Knowledge of different research designs: variable-based, case-based, comparative.
- Ability to combine different research designs.
- Be familiar with the different types of scientific evidence.
- Ability to explain the principles underlying statistical models for social networks.

DESCRIPTION OF CONTENTS: PROGRAMME

1. Introduction
 - Importance of research design in social sciences
 - What it means to answer a question with empirical evidence
 - Types of empirical research
2. Research questions
 - How to find them and how to work with them
 - Description and explanation
 - Variables and relationships between variables
3. Types of research design and empirical information
 - Case studies, comparative studies, quantitative studies with large samples
 - Advantages, disadvantages and complementarities
 - Types of empirical evidence
 - Unit of analysis and variability
 - Measurement problems
4. Causality
 - Prediction, correlation, probability
 - Causal effects and causal mechanisms
 - Mechanism-based explanations
 - Levels of explanation: macro, meso, micro
 - Directed Acyclic Graphs
5. Problems in causal inference
 - Confounding, selection bias, collider bias, etc.
 - Problems of internal and external inference
 - Ecological fallacy, diffusion, external validity, etc.
6. Research design to identify causal relationships
 - Ideal of experimental method in natural sciences
 - Counterfactuals and how to approach them
 - Advantages and disadvantages of causal inference design
7. Introduction to the logic of causal inference methodology
 - Understanding the most common techniques: experiments, difference-in-differences, RDD, matching, etc.

LEARNING ACTIVITIES AND METHODOLOGY

Training Activities:

- Theoretical-practical classes
- Laboratory practical sessions
- Tutorials
- Group work
- Individual student work
- Partial and final examinations

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

- Participation in the class (20%)
- Individual or group work done during the course (40%)
- Final exam (40%)

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

1) Exam: 100%

% end-of-term-examination:	40
% of continuous assessment (assignments, laboratory, practicals...):	60

BASIC BIBLIOGRAPHY

- Ethan Bueno de Mesquita & Anthony Fowler Thinking clearly with data: A guide to quantitative reasoning and analysis, Princeton University Press, 2021
- Nick Huntington-Klein The Effect: An Introduction to Research Design and Causality, Chapman and Hall/CRC Publishing, 2021
- Scott Cunningham Causal Inference: The Mixtape, Yale University Press, 2021