
Academic Year: (2023 / 2024)

Review date: 15-07-2023

Department assigned to the subject: Mathematics Department

Coordinating teacher: SANCHEZ SANCHEZ, ANGEL

Type: Compulsory ECTS Credits : 3.0

Year : 1 Semester : 1

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

Introduction to Programming with R (19151)
Basic Statistics (19152)

OBJECTIVES

- Ability to understand and identify the new challenges faced by the Social Sciences in the digital world.

DESCRIPTION OF CONTENTS: PROGRAMME

1. Introduction
 - What is computational social science (CSS)?
 - The paradigm of CSS
 - First examples
 - Society as a complex adaptive system
 - Main areas of CSS
2. Big data
 - Automatic information extraction and data mining
 - Analysis techniques
 - Examples
3. Social networks
 - Complex networks: basic definitions
 - Quantitative network analysis and software
 - Examples
4. Social complexity
 - Fundamentals and characteristics
 - Quantitative indicators
 - Laws of social complexity
5. Models and simulations
 - Model construction
 - The purpose of simulations
 - Basic software: NetLogo
 - Examples

LEARNING ACTIVITIES AND METHODOLOGY

Training Activities:

- Theoretical classes
- Theoretical-practical classes
- Tutorials
- 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.
 - 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.
 - Seminars/lectures by national and international experts, in face-to-face or remote synchronous sessions.

ASSESSMENT SYSTEM

- Participation in class (20%)
- Group assignment carried out during the course (40%)
- Individual assignment carried out during the course (40%)

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

1) Exam: 100%

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

BASIC BIBLIOGRAPHY

- Claudio Cioffi-Revilla Introduction to Computational Social Science: Principles and Applications, Springer, 2017