Data visualisation and display

Academic Year: (2023 / 2024) **Review date: 03-04-2023**

Department assigned to the subject: Social Sciences Department

Coordinating teacher: RIERA SAGRERA, PEDRO

Type: Compulsory ECTS Credits : 6.0

Year : 1 Semester : 2

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

None

OBJECTIVES

COMPETENCES:

1: Students acquire and understand knowledge that offers a base or opportunity to be original in the development and/or application of ideas, often in a research context.
2: Students can apply the knowledge acquired and be able to solve problems in new or less known contexts related to the area of study.
3: Students are able to integrate knowledge and face the complexity of formulating judgments based on information that, being incomplete or limited, includes reflections on social and ethical responsibilities linked to the application of their knowledge and judgments.
4: Students are able to communicate the conclusions and the knowledge and fundamental motivations of their analysis to a specialized and non-specialized audience in a clear way.
5: Students have the learning skills that allow them to continue studying in a way that will be largely self-directed or autonomous.

6: Ability to plan and carry out autonomously research in the field of public opinion or political behavior.

7: Ability to interpret and integrate information from the political and social environment in order to be able to effectively analyze a situation with incomplete information.

8: Ability to apply the specialized theoretical and methodological knowledge from the discipline to the current political and social phenomena in a practical way.

9: Ability to adequately convey in the analyses the inherent uncertainty of political and social phenomena.

10: Ability to elaborate and communicate political analyses in a clear manner and present them to both specialized and non-specialized audiences.

11: Knowledge of the tools of visualization and presentation of data: Ability to present quantitative analyses in a rigurous, clear and effective way.

12: Knowledge of the use of advanced techniques of analysis and presentation of empirical results to elaborate professional reports and consultancy that allow to explain new political and social phenomena.

LEARNING OUTCOMES:

- Knowledge on visualization of data.
- Foundations of written and oral presentation of data.
- Ability to communicate ideas through tables and graphs.
- Knowledge on how to explore and analyze data by using graphs.
- Knowledge of software tools in order to visualize data.
- Capacity to replicate and visualize studies.

DESCRIPTION OF CONTENTS: PROGRAMME

1. Introduction to the visualization of data. Why is it important?
2. Design principles and types of graphs. The excellence in the visualization.
3. How do we look for data in the data and how do we respond to questions with them.
4. Data sources and extraction techniques.
5. Tools for the visualization, statistics and programming.

LEARNING ACTIVITIES AND METHODOLOGY

LEARNING ACTIVITIES

1	Theoretical-practical classes
2	Lab sessions
3	Tutorials
4	Work in group
5	Individual work

Code	Number of Total Hours	Number of Hours in Class	% of Hours in Class
1	54	54	100
2	18	18	100
3	18	18	100
4	15	0	0
5	195	0	0
TOTAL SUBJECT	300	90	30

METHODOLOGY

1: Instructor´spresentations in class
2: Discussion of practical cases proposed by the instructor, in group or individually
3: Students´s presentations in class
4: Elaboration of reports, in group or individually

ASSESSMENT SYSTEM

- Participation: 10%
- Exercises: 30%
- Draft of the project: 20%
- Project: 30%
- Presentations: 10%

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

BASIC BIBLIOGRAPHY

- Cairo The Truthful Art, Pearson, 2016
- Tufte The Visual Display of Quantitative Information, Graphics Press, 1983

ADDITIONAL BIBLIOGRAPHY

- Grolemund & Wickham R for Data Science, Online, 2016
- Meyer The New Precision Journalism, Indiana University Press, 1991
- Nussbaumer Storytelling with Data, Wiley, 2015
- Stray The Curious Journalist's Guide to Data, Tow Center for Digital Journalism, 2016
- Wong WSJ Guide to Information Graphics, Norton, W. W. & Company, Inc, 2013
- Yau Data Points: Visualization that Means Something, Wiley, 2013