Data Visualization

Academic Year: (2023 / 2024) **Review date: 01/05/2023 12:44:04**

Department assigned to the subject: Library and Information Sciences Department

Coordinating teacher: OLMEDA GOMEZ, CARLOS

Type: Compulsory ECTS Credits : 6.0

Year : 4 Semester : 1

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

Statistical analysis of data.
Spreadsheets. Advanced level.

OBJECTIVES

Understand how visual representations can help in the analysis and understanding of data.
Use existing visualization tools and techniques to analyze data sets.
Understand the fundamentals of good design and apply them to data visualizations.
Acquire best practices for telling stories and communicating through data visualizations.

DESCRIPTION OF CONTENTS: PROGRAMME

1.Fundamentals and basic considerations.
1.1 Value of visualization.
1.2 Criteria and influencing factors.
1.3 Processes and models.
1.4 Tools.
2. Data visualization methods and techniques.
2.1 Visual coding.
2.2 Multivariate data visualizations.
2.3 Temporal visualizations.
2.4 Spatial visualizations.
2.5 Relational structures: trees and networks.
2.6 Text visualizations.
2.7 Interactive visualizations.
3. Communication with data.
3.1 Narratives.
3.2 Ethics and objectivity in data visualisation

LEARNING ACTIVITIES AND METHODOLOGY

TRAINING ACTIVITIES OF CURRICULUM CONCERNING STUDIES
THEORETICAL-PRACTICAL CLASSES. It will present the knowledge that students must acquire. They will receive the class notes and will have basic reference texts to facilitate the monitoring of classes and the development of subsequent work. Exercises and practical problems will be solved by the student and workshops will be held to acquire the necessary skills.
TUTORIES. Individualized assistance (individual tutorials) or in groups (collective tutorials) to the students by the professor.
INDIVIDUAL OR GROUP WORK OF THE STUDENT.

TEACHING METHODOLOGIES
THEORY CLASS (3 ECTS). Exhibitions in the teacher's class with computer and audiovisual media

support, in which the main concepts of the subject and the materials and bibliography are provided to complement the learning of the students.
PRACTICES (3 ECTS). Use of interactive systems for the creation of graphics; use of visual analytics tools and declarative languages..
TUTORIES. Individualized assistance (individual tutorials) or in groups (collective tutorials) to the students by the professor. Face-to-face or virtual mode (Google meet).

ASSESSMENT SYSTEM

% end-of-term-examination/test:	30
% of continuous assessment (assigments, laboratory, practicals…):	70

Throughout the course, students are evaluated on their understanding of the course material, the development of practical skills and cumulative learning demonstrated by completing three evaluable practical exercises and answering a questionnaire on data visualization techniques. A final exam on the contents exposed in the classes is mandatory in order to count the grade achieved in the continuous evaluation. Students are required to hand in completed visualisations of the evaluable exercises with corresponding essays and/or workbooks including extracted data, final report + presentation, according to the instructions in the corresponding statements for each practical exercise.

Continuous assessment tasks: Attendance and participation in class (10%); completion of three continuous assessment exercises: (40%); questionnaire on data visualisation techniques (20%). Total 70% of the final mark.
Objective final exam test, questionnaire type: Total 30% of the final mark.
The final mark is summative. Continuous assessment tasks 70% + Objective final exam test 30% = Final mark for the course 100%.

The extraordinary call will be governed by the provisions of the Regulations approved by the Governing Council on May 31, 2011, or by the regulation that replaces it.

BASIC BIBLIOGRAPHY

- Tufte, Edward R. The visual display of quantitative information, Graphics Press, 2007