Data Visualization

Academic Year: (2022 / 2023) **Review date: 19-05-2022**

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)

There are no specific course prerequisites for this course.

OBJECTIVES

At the end of the course, students are expected to understand, explain, and manipulate basic types of data, analyze them using basic visualization techniques, and create and communicate visualizations of data. They are also expected to be able to assess and improve the effectiveness of data visualizations based on the principles of human perception, design, data types, and visualization techniques.

DESCRIPTION OF CONTENTS: PROGRAMME

1. Quantitative communication.
   1.1 Data analysis an dfundamentals of visualization.
   1.2 The value of visualization.

2. Design of graphics, components and solutions.
   2.1 Data and data sets. Properties of data.
   2.2 Scales, axes, coordinates, colour.

3. Visual encoding design.
   3.1 Data representation. Methods and techniques.
   3.2 Principles of design.

4. Visual analysis.
   4.1 Visualization tools.
   4.2 Visualization types and workflows.

5. Data communication.
   5.1 Context and attention.
   5.2 Narratives.

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 programs, toolkits, and software as service databases, to create and manage static and dynamic data visualizations.
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

Throughout the course, students are assessed on their understanding of the reading material, development of practical skills and cumulative learning in the form of formal examinations, completion of exercises, development of a mini project and written summaries of articles or book chapters, applying the concepts explained in the theory sessions. Students are required to hand in completed visualisations, solved exercise books, mini reports including extracted data, final report + presentation, written summaries for review and gradding by the teacher.

Continuous assessment tasks: exercises (20%), mini project (20%), written summaries (20%).: 60% of the final grade.
Objective final exam test, questionnaire type: 40% of the final grade.
It is necessary to pass the final exam in order to be eligible for continuous assessment. The final grade is summative.

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.

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

BASIC BIBLIOGRAPHY

- Cairo, Alberto. El arte funcional. Infografía y visualización de información, Alamut, 2011
- Tufte, Edward R. The visual display of quantitative information, Graphics Press, 2007