

## 60418 - Thematic Cartography, Geovisualization and Web Mapping

### Syllabus Information

**Academic year:** 2023/24

**Subject:** 60418 - Thematic Cartography, Geovisualization and Web Mapping

**Faculty / School:** 103 - Facultad de Filosofía y Letras

**Degree:** 352 - Master's in Geographic Information Science and Technology for Land Management: Geographic Information Systems and Remote Sensing

**ECTS:** 6.0

**Year:** 1

**Semester:** Annual

**Subject type:** Compulsory

**Module:**

### 1. General information

The student should be able to elaborate thematic maps that optimally represent a series of geographic facts and processes, as well as to improve them using infographic programs. They will also be able to develop a visualizer supported by spatial database management systems and geodata services publishing tools, together with the representation of geographic information in a three-dimensional and dynamic environment.

Approaches aligned with the following Sustainable Development Goals (SDGs): 2, 6, 11, 13, 14 and 15.

It is recommended to have taken the elective subject 1.3.- "Principles of cartographic design" and it is necessary to use GIS programs.

### 2. Learning results

- Self-evaluate their own thematic maps at an advanced level, being able to improve the conception of their document by identifying the weak or unresolved points it presents.
- Prepare thematic maps using geographic information systems or automatic mapping techniques that meet professional cartographic quality standards.
- Properly use of the terminology of the cartographic design process when preparing a thematic map.
- Select, analyse and prepare thematic information to be represented in terms of professional cartographic quality.
- Prepare thematic maps representative of the cartographic message to be transmitted, adapt them to the target audience and use all the potentialities of the cartographic code allowed by GIS and computer graphics programs.
- Select in an autonomous and justified way the optimal option of cartographic representation adapted to the specific circumstances of concrete cases being aware that different cartographic trajectories may imply different messages transmitted.
- Apply with rigor the basic principles of cartographic design in the elaboration of thematic maps. Integrate text, graphics, images, video, animations, sound and any other media that can be digitally processed into a computer system.
- Clearly know the logical structure of the information visualization paradigm proposed by Computer Graphics.
- Know the most appropriate type of solutions when visualizing scalar, vector, tensor, tensor data, ...  
Learn how to pose appropriate solutions to mesh visualization problems with several different types of attributes at each node in the space.
- Understand the theoretical foundations necessary to use the appropriate tools to represent geographic data in 3D and dynamically.
- Be capable of elaborating 3D representations of geographic data, either static or dynamic, applying the appropriate technology and methods.

### 3. Syllabus

- 5.1- Design and creation of thematic maps and other documents: tools, technological advances, and digital preservation
- 5.2- Developments and implementations of geographic information in computer graphics applications
- 5.3- Design and creation of tools to visualize and share spatial information online
- 5.4- Computer graphics representations: volumetric visualizations and 3D rendering

### 4. Academic activities

This subject is eminently practical in nature.

5.1- Design and creation of thematic maps and other documents: tools, technological advances, and digital preservation

Theoretical and practical sessions, practices, public presentation, personal study and work, and evaluation.

5.2- Developments and implementations of geographic information in computer graphics applications

Theoretical-practical sessions, practices, study and personal work and evaluation.

5.3- Design and creation of tools to visualize and share spatial information online

Theoretical-practical sessions, practices, study and personal work and evaluation.

5.4- Computer graphics representations: volumetric visualizations and 3D rendering

Theoretical-practical sessions, practices, study and personal work and evaluation.

## 5. Assessment system

### First Call:

The student can opt for CONTINUOUS or GLOBAL EVALUATION, based on the same type of tests and evaluation criteria. The continuous exam will be held during the class period and the overall exam will be held on the date of the examination period set by the Faculty. The final grade is obtained from the weighted average of the thematic blocks, being necessary a minimum grade of 4 points in each block to average. Percentage of each block:

5.1.- 33%: Practical work (70%). Public presentation (30%).

5.2.- 21%: Practical work (100%).

5.3.- 33%: Practical work (100%).

5.4.- 13%: Practical work (100%).

Criteria: Complexity of the map, rigor in the use of the cartographic code, map aesthetics, inclusion of basic elements, adequacy and precision of the report, ability to transmit information to the public, organization of the poster, infographic contribution, interest and usefulness for the user, correct use of terminology, correct technical and methodological resolution, rigor and coherence in the argumentation, complexity of the viewer, skill in the use of representation tools, adjustment to cartographic design criteria.

### Second call:

Same type of tests and criteria as in the first call.