

**COURSE DATA****Data Subject**

<b>Code</b>	33802
<b>Name</b>	Cartography I
<b>Cycle</b>	Grade
<b>ECTS Credits</b>	6.0
<b>Academic year</b>	2018 - 2019

**Study (s)**

<b>Degree</b>	<b>Center</b>	<b>Acad. year</b>	<b>Period</b>
1318 - Degree in Geography and the Environment	Faculty of Geography and History	1	First term

**Subject-matter**

<b>Degree</b>	<b>Subject-matter</b>	<b>Character</b>
1318 - Degree in Geography and the Environment	593 - Geography II	Basic Training

**Coordination**

<b>Name</b>	<b>Department</b>
CAMARASA BELMONTE, ANA	195 - Geography

**SUMMARY**

Cartography is a first cycle subject of the studies in Bachelor in Geography and Environment. It is a basically instrumental and practical subject. The teaching load is 6 credits, 4.5 of them theoretical and 1.5 practical and it is taught in the first semester, first grade year. This module's main objective is to introduce students to the analysis and interpretation of maps as a source of data and basic tool for understanding and analysis of the territory. Maps are a fundamental tool for the geographer, information source, an analytical and graphical means of expression of geographic information.

This course will lay the foundations for instrumental analysis of spatial distribution of physical and human geographical facts.



## PREVIOUS KNOWLEDGE

### Relationship to other subjects of the same degree

There are no specified enrollment restrictions with other subjects of the curriculum.

### Other requirements

Those to study the Bachelor of Geography and Environment.

## OUTCOMES

### 1318 - Degree in Geography and the Environment

- Have capacity for analysis and synthesis.
- Have oral and written communication skills in one's own language and in a foreign language.
- Have computer skills related to the field of study.
- Be able to work independently.
- Be able to work in interdisciplinary teams.
- Show commitment to the values of gender equality, interculturality, equal opportunities, universal access for people with disabilities, the culture of peace, democratic values and solidarity.
- Be able to learn independently and show creativity, initiative and entrepreneurship. Be able to resolve unforeseen situations.
- Show motivation for quality, responsibility and intellectual honesty.
- Learn about regional geographical spaces.
- Learn about human, economic and social geography.
- Learn about physical geography.
- Be able to use cartography and geographic information systems.

## LEARNING OUTCOMES

As a general objective students have to understand the map and aerial photography as information sources and analytical tools for the geographer. The specific objectives can be summarized as:

A) To introduce students to the problems of mapping the earth's surface, specifically the passage of a curved surface to the plane through projection systems. To facilitate the understanding of space and location of elements on it means of the concept of scale and coordinate systems. Time zones and distance calculations.



B) To obtain the necessary practice for reading, analysing and interpreting the topographic map. To learn to identify, recognize and classify physical and human elements represented on the map, to identify the relationships between them, their territorial organization, to formulate hypotheses and to deduce the meaning of these relations. Basic measurements on the map.

B) To obtain the practice required for reading, analysing and interpreting the topographic map. To learn to identify, recognize and classify physical and human elements represented on the map, to identify the relationships between them, their territorial organization, to formulate hypotheses and to deduce the meaning of these relations. To make basic measurements on the map.

C) Introduction to basic principles of air and space remote sensing, and interpretation of aerial pictures.

As a mainly instrumental subject, it is intended that students acquire experience and skill in working with maps and aerial photographs. Special emphasis will be done on topographic mapping that is the basis or reference to thematic mapping covered in other subjects.

During the first year of the degree is very important that students become familiar with the main sources of geographic data: topographic maps, field work, and aerial photographs, and skilled in the use of basic techniques to extract qualitative and quantitative information. The theoretical and practical lessons of this course address four basic questions:

- a. understanding the scale concept essential for extracting quantitative information
- b. understanding the geographic coordinate system and the UTM coordinate system
- c. introduction to fluent reading of maps: adequate interpretation of topographic maps symbols and introduction to the identification of geographic features in aerial photography
- d. initiating students in identifying elements on the ground and finding the relationships between reality and map information

Topographic maps, aerial photography and satellite pictures are documents that are currently available to the general public, in public agencies, mapping institutes and internet. Geography students have to know the existence of organisms, professionals, institutions and national and international companies that produce general cartographic material and how to access it.

Students have to be aware that maps have been throughout history basic documents that have guided maritime and land exploration and have contributed to planet's geographical knowledge. And at present, thanks to the advances in digital mapping and remote sensing they are indispensable and basic tools for public authorities and for the geographer in order to know the lands reality and to use planning and management of natural resources. You should be aware that the maps have been throughout history the basic document that has guided maritime exploration and land and contributed to the knowledge of the geography of the planet. And now, thanks to advances in digital mapping and remote sensing is an indispensable tool and basic public authorities and to know the reality geographer territory and for use planning and for the management of natural resources.



## DESCRIPTION OF CONTENTS

### 1. Mapping and map. Types of maps. Cartographic production centers.

Maps. Scale. Scale calculation.

### 2. Shape and dimensions of the Earth. Geographic coordinates. Orientation

Latitude and longitude. Geographic coordinates. Orientation

### 3. Projection systems. The U.T.M. projection

UTM Coordinates

### 4. The topographic map. Representation of relief. Scale and measurements

Topographic map. General reading. Calculations and measurements: distances, topographical profiles, slopes and areas

### 5. Aerial Photography. Photointerpretation

Aerial Photography: Photo Interpretation

## WORKLOAD

ACTIVITY	Hours	% To be attended
Theory classes	30,00	100
Computer classroom practice	15,00	100
Other activities	15,00	100
Attendance at events and external activities	7,00	0
Study and independent work	7,00	0
Readings supplementary material	6,00	0
Preparation of evaluation activities	20,00	0
Preparing lectures	20,00	0
Preparation of practical classes and problem	25,00	0
Resolution of online questionnaires	5,00	0
<b>TOTAL</b>	<b>150,00</b>	



## TEACHING METHODOLOGY

Teaching the subject of mapping are supported in 5 areas:

1) Theory:

- Throughout the entire course, the professor will explain the basic contents of the course, structured around the themes outlined in the theoretical sessions, with weekly 2 sessions of 1 hour. As a complement in order to reinforce and strengthen gradually learning students will be forwarded to readings and studying basic questions at the literature.

2) Practice.

- Delivery of one hour sessions. In these sessions the professor will explain techniques, methods and ways of performing the exercises.

3) Delivery of compulsory practical activities.

4) Complementary Activities, mainly in the Map Laboratory.

5) Preparation and implementation of a final exam.

## EVALUATION

Learning assessment will be based on the following:

- Continuous evaluation of the assistance and work during the practical classes.
- Evaluation of a final theoretical and practical exam to be passed for averaging with the rest.
- see Annex

## REFERENCES

### Basic

- BIELZA DE ORY, V., Ed. (1993). Geografía general, Tomo I, capítulo II: Información geográfica y representación cartográfica, Ed. Taurus, Madrid.
- CORBERO, M.V. et al. (1993), Trabajar mapas. Biblioteca de Recursos Didácticos, Alhambra, 152 p.





- CHUVIECO, E.. (1990): Fundamentos de teledetección espacial, Madrid, Ediciones Rialp, S.A. 453 p.
- ESTÉBANEZ ALVAREZ, J., PUYOL, R. (1976), Análisis e interpretación del mapa topográfico, Ed. Tebar Flores, Madrid.
- FERNANDEZ GARCIA, F. (2000), Introducción a la fotointerpretación, Ed. Ariel, Barcelona.
- JOLY, J. (1979), La cartografía. Barcelona, Ed. Ariel.
- LOPEZ VERGARA, M. (1988), Manual de fotogeología, Madrid, Junta de Energía Nuclear, 3ª ed.
- MARTÍN LÓPEZ, J. (1999), Cartografía, Colegio Oficial de Ingenieros Técnicos en Topografía, Madrid.
- RAIZ, E. (1985), Cartografía General, Barcelona, Ed. Omega.
- ROBINSON, A. et al. (1987): Elementos de Cartografía, Ed. Omega.
- STRAHLER, A.N. (1977), Geografía Física, Barcelona, Omega.
- URTEAGA, L. y NADAL, F. (2001), Las series del mapa topográfico de España a escala 1/50.000. Ministerio de Fomento. Dirección General del Instituto Geográfico Nacional,
- VAZQUEZ MAURE, F. MARTÍN LÓPEZ, J. (1987), Lectura de mapas. MOPU, I.G.N., 382 p.