

28304 - General cartography

Información del Plan Docente

Academic Year	2016/17
Academic center	103 - Facultad de Filosofía y Letras
Degree	419 - Degree in Geography and Land Management
ECTS	6.0
Course	1
Period	First semester
Subject Type	Compulsory
Module	---

1. Basic info

1.1. Recommendations to take this course

1.2. Activities and key dates for the course

2. Initiation

2.1. Learning outcomes that define the subject

2.2. Introduction

3. Context and competences

3.1. Goals

3.2. Context and meaning of the subject in the degree

3.3. Competences

3.4. Importance of learning outcomes

4. Evaluation

5. Activities and resources

5.1. General methodological presentation

The learning and teaching methodology developed in the course *Cartografía general* is aimed to promote the attainment of its objectives. A wide range of teaching and learning activities is implemented, such as interactive lessons, practical exercises, individual or group activities, directed activities, field work and private study. Extensive material will be available *via* the Moodle site of the course. This offers a variety of resources including a repository of the lecture notes used in class as well as other forms of course-specific complementary materials.

5.2. Learning activities

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Lecture sessions

Given the eminently practical character of this course there are few sessions that we might consider to be definitely as lecture sessions. Usually, after a brief presentation of the conceptual and methodological aspects of the program we introduce interactive, individual or group activities. There are frequent consultations of web pages related to the subject of study and comment of printed cartography. Also diverse teaching and learning skills are put into practice to encourage the participation of students like class whispering, brainstorming, forums, etc. The students have in the *Anillo Digital Docente* (Moodle Site) a repository of the lecture notes used in class as well as other forms of course-specific complementary materials (web pages links, analogical and digital cartographic resources, etc.).

Interactive, individual or group activities and Laboratory sessions

These practical sessions will take place in the assigned classroom or, punctually, in the computer classroom. Beginning every session the necessary information will be facilitated to the student to carry out the tasks to be developed in the practice. Among the activities that are programmed we can stand out: practices related to the access and handling of cartographic resources in Internet; comment of different types of maps; practices related to the handling and analysis of the topographic map; scales problems; exercises of spatial orientation on the map and on the field (handling of compass and GPS); making and handling of Digital Elevation Models and development of derivative information (illumination, contours, slope, aspect, topographic profiles, 3-D visualization, etc.).

Field work

In this session diverse skills related to spatial orientation on the map and on the field will be practiced (use of the compass and GPS, map orientation).

Directed activities

They are implemented to help the students to carry out the works and exercises that they must solve individually and also as a help to solve doubts related with the theoretical and practical program of the course.

5.3.Program

The lecture course will address the following main issues:

Thematic block I. Cartography. Theme 1. General concepts: introduction to the cartographic document. Theme 2. The historical process of the Cartography.

Thematic block II. Essentials of Geodesy. Theme 3. Basic concepts of Geodesy. Theme 4. The cartographic projections.

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Thematic block III. The Topographic Cartography. Theme 5. The National Topographic Map. Theme 6. Methods of representation of the relief. Theme 7. Web Map Services (WMS): available resources in topographic cartography.

Thematic block IV. Spatial relationships. Theme 8. The scale. Theme 9. Calculation of distances and areas.

Thematic block V. Spatial Reference. Theme 10. Determination of geographical and UTM coordinates. Theme 11. Orientation. Theme 12. Global Positioning Systems: essentials and applications in Geography.

Thematic block VI. Analysis of topographic variables. Theme 13. Calculation and mapping of topographic variables: heights, slopes, topographic profiles. Theme 14. Digital Elevation Models: development of derivative information .

5.4.Planning and scheduling

The course *Cartografía general* is divided into 6 thematic blocks. The first and second blocks are introductory and include the themes 1 to 4; they run during the first four weeks of the term. The thematic blocks 3-5 include the themes 5 to 12; they are taught during the middle and final part of the semester. The thematic block 6 covers the themes 13 and 14 and develops during the final three weeks of the course.

For further details concerning the timetable, classroom and other information of the course please refer to the: *Facultad de Filosofía y Letras* web site (<https://fyl.unizar.es/horario-de-clases#overlay-context=horario-de-clases>).

5.5.Bibliography and recommended resources

Basic bibliography:

ROBINSON, A.H., SALE, R. y MORRISON, J. (1987): *Elementos de Cartografía* , Omega, Barcelona, 543 pp.

SLOCUM, T.A., McMASTER, R.B., KESSLER, F.C. y HOWARD, H.H. (2005): *Thematic cartography and geographic visualization* , Prentice Hall, London, 518 pp.

Recommended bibliography:

ANSON, R.W. y ORMELING, F.J. (1993): *Basic cartography for students and technicians* , International Cartographic Association, London, 344 pp.

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- BÉGUIN, M. y PUMAIN, D. (1994): *La représentation des données géographiques: statistique et cartographie* , Armand Colin, Paris, 192 pp.
- BERTHON, S. y ROBINSON, A. (1991): *The shape of the world: the mapping and discovery of the Earth* , George Philip, London, 192 pp.
- BERTIN, J. (1967): *Sémiologie graphique* , Gauthier-Villars, Paris, 431 pp.
- BROTHERTON, L. (2011): *Manual de orientación* , Paidotribo, Badalona, 364 pp.
- BROTTON, J. (2012): *Historia del mundo en 12 mapas* , Debate, Barcelona, 607 pp.
- CRONE, G.R. (2000): *Historia de los mapas* , Fondo de Cultura Económica, Madrid, 300 pp.
- GARCÍA GÓMEZ, E. (2000): *Orientación. Desde el mapa y la brújula hasta el GPS y las carreras de orientación* , Desnivel, Madrid, 124 pp.
- DENT, B.B. (1985): *Cartography: thematic map design* , WCB Publishers, Dubuque, 427 pp.
- DODGE, M., KITCHIN, R. y PERKINS, C. (Eds.) (2011): *Rethinking maps: new frontiers in cartographic theory* , Routledge, London, 246 pp.
- DOMÍNGUEZ, F. (1991): *Topografía general y aplicada* , Dossat, Madrid, 823 pp.
- FLEMING, J. (1995): *Orientación: todo sobre el mapa y la brújula* , Desnivel, Madrid, 149 pp.
- GILPÉREZ, L. (1986): *Lectura de planos* , Penthalon Ediciones, Madrid, 188 pp.
- JIMÉNEZ, J. y MONTEAGUDO, E. (Eds.) (2001): *La documentación cartográfica. Tratamiento, gestión y uso* , Publicaciones de la Universidad de Huelva, Huelva, 596 pp.
- JOLY, F. (1988): *La cartografía* , Oikos-Tau, Barcelona, 133 pp.
- LEFORT, J. (2004): *L'aventure cartographique* , Belin, Paris, 320 pp.
- MacEACHREN, A.M. (2004): *How maps work: representation, visualization, and design* , Guilford, London, 513 pp.
- MacEACHREN, A.M. y FRASER, D.R. (Eds.) (1994): *Visualization in modern cartography* , Pergamon, Oxford, 345 pp.
- MONMONIER, M. (1991): *How to lie with maps* , The University of Chicago Press, Chicago, 176 pp.
- MORENO JIMÉNEZ, A. (2007): *Sistemas y Análisis de la Información Geográfica* , Ra-Ma, Madrid, 911 pp.

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- ORDÓÑEZ, C. y MARTÍNEZ-ALEGRÍA, R. (2002): *Sistemas de Información Geográfica* , Ra-Ma, Madrid, 227 pp.
- PEÑA, J. (2006): *Sistemas de Información Geográfica aplicados a la gestión del Territorio* , ECU, Alicante, 310 pp.
- PETERS, A. (1992): *La Nueva Cartografía* , Vicens Vives, Barcelona, 132 pp.
- PUCH, C. (2002): *GPS. Aplicaciones prácticas* , Desnivel, Madrid, 144 pp.
- PUYOL, R. y ESTÉBANEZ, J. (1978): *Análisis e interpretación del mapa topográfico* , Tebar-Flores, Madrid, 89 pp.
- RAISZ, E. (1978): *Cartografía general* , Omega, Barcelona, 436 pp.
- RITCHIE, W., WOOD, M., WRIGHT, R. y TAIT, D. (1988): *Surveying and mapping for field scientists* , Longman, London, 189 pp.
- TYNER, J.A. (2010): *Principles of Map Design* , Guilford, New York, 259 pp.
- VALDÉS, F. (1989): *Prácticas de topografía, cartografía, fotogrametría* , Biblioteca del Topógrafo, CEAC, Barcelona, 387 pp.
- VÁZQUEZ MAURE y MARTÍN LÓPEZ, J. (1986): *Lectura de mapas* , Instituto Geográfico Nacional, Madrid, 381 pp.
- WOOD, D. (1993): *The power of maps* , Routledge, London, 248 pp.