VNIVERSITAT DE VALÈNCIA

Course Guide
41054 Environment. Work in the field and cartography

COURSE DATA

Data Subject	
Code	41054
Name	Environment. Work in the field and cartography
Cycle	Master's degree
ECTS Credits	10.0
Academic year	2021 - 2022

Study (s)

Degree	Center	Acad. year	Period
2001 - M.D. in Environmental and Territorial Management Techniques	Faculty of Geography and History	1	Second term

Subject-matter

Degree	Subject-matter	Character
2001 - M.D. in Environmental and Territorial Management Techniques	3 - Methods and techniques for the analysis of the physical environment	Optional

Coordination

Name	Department
CARMONA GONZALEZ, MARIA PILAR ASCENS	195 - Geography

SUMMARY

The great technological development experienced by Cartography in recent decades, linked to the scientific and technological advancement in issues related to the environment, demands having an adequate knowledge of the various thematic maps that are produced and used in environmental management. Mapping is the basis on which to verify the analyses and assessments carried out in the field of environmental and land management. Environmental information is complex and diverse, comes from very different sources and presents very different thematic, spatial and temporal components. For this reason, it is essential to know and use geographic information systems (GIS) as a key tool to store, integrate and manage the vast amount of environmental information that is currently available. The course has two parts. The first focuses on introducing basic concepts of environmental mapping. Special emphasis is placed on producing spatial maps of geomorphological processes, on entering data into a GIS, and on mapping applied to risk. The second part deals with fieldwork.

PREVIOUS KNOWLEDGE

Relationship to other subjects of the same degree

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

Other requirements

None

OUTCOMES

2001 - M.D. in Environmental and Territorial Management Techniques

- Capacidad de organización, planificación y gestión de la información ambiental y territorial
- Técnicas de análisis cuantitativo
- Manejo de Sistemas de Información Geográfica aplicados a los problemas medioambientales y territoriales
- Técnicas de Teledetección espacial
- Análisis del medio físico de una manera integrada, interrelacionando sus componentes a partir del trabajo de campo y manejo de elementos cartográficos y toma de datos.
- Capacidad de analizar y caracterizar riesgos medioambientales, su prevención, predicción y gestión.
- Students should apply acquired knowledge to solve problems in unfamiliar contexts within their field of study, including multidisciplinary scenarios.
- Students should be able to integrate knowledge and address the complexity of making informed judgments based on incomplete or limited information, including reflections on the social and ethical responsibilities associated with the application of their knowledge and judgments.
- Students should communicate conclusions and underlying knowledge clearly and unambiguously to both specialized and non-specialized audiences.
- Students should demonstrate self-directed learning skills for continued academic growth.

LEARNING OUTCOMES

Production of environmental mapping with GIS

Management of topographic information and extraction of useful data for land and environmental management

Studies of environmental risks, prevention, prediction and management. Preparation of applied climate studies

Studies of degradation of natural systems (rivers, coasts, slopes) and restoration proposals

DESCRIPTION OF CONTENTS

1. Tema 1. LIDAR. Basics and applications

2. Tema 2. Geomorphological mapping

Methodology. Information on the geomorphological map: lithology, structure, genesis of forms (environments: gravitational, fluvial, coastal, lake, wind, glacial-periglacial). Geomorphological processes. Environmental change. Organisation of data into a GIS.

3. Tema 3. Flood maps

Studies of major flooding processes. Hydrogeomorphological mapping for flood hazard. Hazard maps. Case study.

4. Tema 4. Risk mapping and GIS

Conceptual and methodological aspects. Concepts of hazard, vulnerability, exposure and risk.
Solving a case study of flood mapping in surface water drains.

5. Tema 5. Trabajo de campo.

Soil survey. Impact and project assessment. Review of environmental cartography on site.

WORKLOAD

ACTIVITY	Hours	% To be attended
Classroom practices	25,00	100
Other activities	19,00	100
Theory classes	10,00	100
Seminars	6,00	100
Tutorials	2,00	100
Development of individual work	50,50	0
Readings supplementary material	10,00	0
Preparation of practical classes and problem	92,50	0
Resolution of case studies	35,00	0
TOTAL	**250,00**	

TEACHING METHODOLOGY

The course is based on the use of different learning activities which include the following:

• Participatory lectures

- Presentation of theoretical content and classroom discussion.

- Comparison with and critical analysis of future experiences.

- Proposals for environmental management strategies.

- Reasoned selection of different solution proposals.

• Practical classes

- Approach to and resolution of applied cases.

- Use of GIS (IDRISI and ARC MAP) for the treatment of basic digital cartography (MDT, lithology, land use, etc.) and for producing risk maps (hazard maps, exposure/vulnerability maps and flood risk maps, etc.).

Fieldwork: Field trips will include visits to points of interest, with brief explanations offered by the lecturer and group discussion.

• Reading of scientific papers and manuals

• Tutoring

EVALUATION

Learning assessment will be based on one or more of the elements proposed by the lecturers teaching in the module:

Continuous assessment will take into account attendance and participation both in class and in field trips (compulsory).

Essays or reports as proposed by the lecturer.

Reading and summarising research articles.

Taking an objective test on basic knowledge taught.

The assessment model is apportioned in the following percentages:

• Attendance at contact sessions (minimum attendance of 80%)

• Test: up to 40%

• Essays and practicals: 30% -50%

• Supplementary activities: 30% -50%

REFERENCES

Basic

- GARZÓN, M.G. (1978): Metodología de la cartografía geomorfológica. Su interés científico y aplicado, Fundación Juan March, 152 pp.
- PELLICER, F. et al. (1997): La cartografía geomorfológica en España, PEÑA, J.L. (ed.) Cartografía geomorfológica básica y aplicada, Geoforma, Logroño, pp. 103-122.
- AYALA-CARCEDO, F.J. y Olcina Cantos, J. (coord) (2002): Riesgos naturales,Ed. Ariel, Barcelona, 1512 pp.
- OLCINA CANTOS, J. (2006) ¿Riesgos Naturales? I. Sequías e inundaciones. Editorial DaVinci Continental. Colección Geoambiente XXI. Barcelona, 220 p.

Additional

- CARMONA, P. y RUIZ PÉREZ, J.M. (1996): Cartografía geomorfológica, cartografía automática y Sistemas de Información Geográfica. (Hoja MTN Nº 747 Sueca), Cuaternario y Geomorfología, 10 (1-2): 3-19
- GUSTAVSON, M., KOLSTRUP, E. and SEIJMONSBERGEN, A.C. (2006): A new symbol-and GIS based detailed geomorphological mapping system: Renewal of a scientific discipline for understanding landscape development Geomorphology, 77, 90-11.
- HERRERO, M. et al. (1990): Mapa geomorfológico de España a escala 1: 1.000.000. Leyenda y Signos convencionales, I Congreso de Geomorfología, Teruel.
- MARTÍN-SERRANO, A. et al. (2005): Mapa geomorfológico de España a escala 1:50.000. Guía para su elaboración, IGME, Madrid, 128 pp.
- PEÑA J.L. et al., (1997): Leyendas para mapas geomorfológicos a escalas 1: 100.000 y 1:25.000/1:50.000, PEÑA, J.L. (ed.) Cartografía geomorfológica básica y aplicada, Geoforma, Logroño, pp.129-146.
- CAMARASA, A.M. (2006): Inundaciones en España. Tipología. La importancia de las avenidas súbitas; Riesgos Naturales y Desarrollo Sostenible. Impacto, predicción y Mitigación. Serie Medio Ambiente: Riesgos Geológicos. Instituto Geológico y Minero, 10, 167-178.
- CAMARASA, A.M. y Bescós, A. (2004): Cartografía de áreas inundables: comparación entre mapas de peligro y mapas de inundaciones concretas, Riesgos Naturales y Antrópicos en Geomorfología, Sociedad Española de Geomorfología, vol. 2, 25-36.
- CAMARASA, A.M. y Segura, F. (2001): Las crecidas en ramblas mediterráneas; Estudios Geográficos, LXII, 245, 649-674.
- DÍEZ-HERRERO, A., Laín-Huerta, M., Llorente-Isidro, M. (2008): Mapas de peligrosidad por avenidas e inundaciones: guía metodológica para su elaboración.
  Madrid: Instituto Geológico y Minero de España, 190 pp.
- OLCINA CANTOS, J. (2004) Riesgo de inundaciones y ordenación del territorio en la escala local. El papel del planeamiento urbano municipal, Boletín de la Asociación de Geógrafos Españoles, nº 37 (monográfico Agua y Ciudad), Madrid, Asociación de Geógrafos Españoles, pp. 49-84.

ADDENDUM COVID-19

This addendum will only be activated if the health situation requires so and with the prior agreement of the Governing Council

SEMI-PRESENTIAL TEACHING

1. Contents

The contents initially included in the teaching guide are maintained

2. Workload and time schedule

The activities and their hours of dedication in ECTS credits marked in the original course guide will be kept. If the classrooms capacity according to the sanitary norms allows it, the theoretical and practical class attendance will be 100%; if the capacity couldn't be guaranteed, the class attendance would be reduced, replacing face-to-face classes with synchronous non-face-to-face teaching.

Field work trips in the first semester are transferred to the second, being conditioned to the health situation. In case of not being able to carry them out for health reasons, they will be replaced by non-contact activities that will be specified at the beginning of the term in the Annex to the Course Guide, like the rest of the teaching planning.

If the sanitary situation changes and no access to the University facilities is possible, all teaching activities will be carried out completely online (synchronous non-classroom teaching). In this case, the adaptations will be communicated to the students through the Virtual classroom.

3. Teaching Methodology

Theory and practice classes that may be complemented with different types of materials and activities in the Virtual classroom.

Tutorials will be done online (through the UV corporate mail) or face-to-face by prior appointment with the teacher.

If the sanitary situation changes and no access to the University facilities is possible, teaching and tutorials will be carried out completely online. In this case, the adaptations will be communicated to the students through the Virtual classroom.

4. Evaluation

The evaluation criteria established in the Course Guide are kept.

If the University facilities were closed on the dates set in the official calendar for the exams, the face-to-face exam would be replaced by an online test.

5. Bibliographic references

The recommended bibliography in the Course Guide is kept. If the sanitary situation changes and the access to the recommended bibliography is not possible, it will be replaced by materials accessible online.

6. Field trips

If it is not possible to carry out the field trips described in the teaching guide, the activity will be replaced by the viewing of videos and ppt presentations. These materials will be discussed in on-line classes with the same schedule. The evaluation will be carried out through a work presented by the students on an agreed date.