COURSE DATA

DATA SUBJECT

Code: 41054
Name: Environment. Work in the field and cartography
Cycle: Master's Degree
ECTS Credits: 10
Academic year: 2025-26

STUDY (S)

Degree	Center	Acad. year	Period
2001 - Master's Degree in Environmental and Territorial Management Techniques	Facultat de Geografia i Història	1	Second quarter

SUBJECT-MATTER

Degree	Subject-matter	Character
2001 - Master's Degree in Environmental and Territorial Management Techniques	Methods and techniques for the analysis of the physical environment	ELECTIVES

COORDINATION

CAMARASA BELMONTE ANA

SUMMARY

The analysis of the physical environment is fundamental for environmental and territorial management tasks since, as a natural support where anthropic activity is based, it is in continuous interrelation with people, as it receives their impacts and conditions their activities.

Often, the result of this constant interaction generates a considerable imbalance between the environment and land use, often leading to an increase in natural hazards.

In recent decades there has been an important scientific and technological advance in issues related to the environment and risks. On the one hand, environmental information has multiplied and there are more and more sources that provide environmental data. On the other hand, spatial and temporal analysis tools have also increased in complexity and diversity.

The sustainable management of the natural environment requires up-to-date scientific and technological knowledge that allows the main environmental variables, as well as their interactions, to be analysed, recognised in the field and mapped in order to maintain balance and reduce risks.

In this context, the course covers three blocks of content:

a) A first introductory block that includes the basic concepts in relation to the integration of natural variables, changes in land use and environmental mapping.

b) A second block dedicated to the mapping of the most common risks.

c) A third block of field work, where the aim is to identify, analyse and validate both the cabinet work.

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

COMPETENCES / LEARNING OUTCOMES

2001 - Master's Degree in Environmental and Territorial Management Techniques

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.

Capacidad de organización, planificación y gestión de la información ambiental y territorial

Manejo de Sistemas de Información Geográfica aplicados a los problemas medioambientales y territoriales

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.

Técnicas de análisis cuantitativo

Técnicas de Teledetección espacial

DESCRIPTION OF CONTENTS

1. Integrated analysis of the physical environment for the study of natural hazards

Identification and selection of variables of the physical environment according to the objectives of the study. Reflection on the variables involved in flood and fire risks in Mediterranean environments (type, availability of information, scale, updating, etc.).

2. Land use: analysis of changes

Land use analysis. Synthesis of categories according to objectives. Mapping of changes and interpretation of results.

3. Environmental Cartography

Introduction to Environmental Cartography. Fundamentals and principles. Methodologies and technical standards for its elaboration. Examples. Cartography of natural resources: basic, derived and synthesis maps. Analysis and interpretation. Comparison of studies.

4. Official hazard mapping

Characteristics and methodologies of official cartographies. Resolution of a practical case of hazard mapping in different hydrogeomorphological areas.

5. Flood mapping: hazard, vulnerability and risk

Conceptual and methodological aspects. Concepts of hazard, vulnerability, exposure and risk. Resolution of a practical case of flood mapping in a wadi.

6. Forest fire analysis and mapping

Variables influencing fire hazard: fuels, topography, meteorology. Additional exposure and vulnerability variables that impact, together with hazard, on fire risk. Conceptual aspects for the identification of burned areas by remote sensing. Forest fire mapping exercise using GIS and remote sensing tools.

7. Field work

Reconnaissance of the territory. Assessment of impacts and projects. Review of environmental cartography in the field.

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Tutorials	2,00
Theory	4,00
Seminar	6,00
Other activities	16,00
Computer classroom practice	34,00
Total hours	**62,00**

NON PRESENCIAL ACTIVITIES

Activity	Hours
Attendance at other activities	0,00
Individual or group project	50,50
Independent study and work	10,00
Preparation of lessons	92,50
Preparation for assessment activities	0,00
Resolution of case studies	35,00
Total hours	**188,00**

TEACHING METHODOLOGY

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

a) Participative lectures.

Presentation of theoretical content in the classroom and discussion.

Comparison with similar experiences, critical analysis of the same.

Proposals for risk analysis and environmental management strategies.

Reasoned selection of different solution proposals.

b) Practical classes:

Approach and resolution of applied cases.

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

c) Field work: Field trips will take the form of itinerant visits to points of interest, with brief explanations by the teacher and/or group discussion.

d) Reading of scientific articles and manuals.

e) Tutorials.

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.

The assessment model is apportioned in the following percentages:

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

¿ Essays and practicals: 50%

¿ Supplementary activities: 50%

Regarding the assessment and grading, the appropriate provisions of Chapter VI of the Regulations of assessment and grading of the Universitat de València for bachelor's and master's degrees will be followed. ACGUV 108/2017 (http://www.uv.es/graus/normatives/2017_108_Reglament_avaluacio_qualificacio.pdf).

Regarding the plagiarism of any of the works requested in the framework of this module, the CEC approves, in the meeting of 26 March 2024, that the deliveries with 20% or more of plagiarism will be suspended.

We also recommend accessing and reading the Protocol of action against fraudulent practices at the Universitat de València. ACGUV 123/2020 (https://www.uv.es/sgeneral/Protocols/C83sp.pdf).

REFERENCES

Basic:

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CAMARASA-BELMONTE, A. M., y SORIANO-GARCÍA, J. (2012). Flood risk assessment and mapping in peri-urban Mediterranean environments using hydrogeomorphology. Application to ephemeral streams in the Valencia region (eastern Spain). *Landscape and Urban Planning*. 104, 189-200.

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CHUVIECO, E., YEBRA, M., MARTINO, S., THONICKE, K., GÓMEZ-GIMÉNEZ, M., SANMIGUEL, J., OOM, D., VELEA, R., MOUILLOT, F., MOLINA, J. R., MIRANDA, A. I., LOPES, D., SALIS, M., BUGARIC, M., SOFIEV, M., KADANTSEV, E., GITAS, I. Z., STAVRAKOUDIS, D., EFTYCHIDIS, G., BAR-MASSADA, A., NEIDERMEIER, A., PAMPANONI, V., PETTINARI, M. L., ARROGANTE-FUNES, F., OCHOA, C., MOREIRA, B., y VIEGAS, D. (2023). Towards an Integrated Approach to Wildfire Risk Assessment: When, Where, What and How May the Landscapes Burn. *Fire*, 6, 215.

DI¿EZ-HERRERO, A., LAI¿N-HUERTA, L., y LLORENTE-ISIDRO, M. (2008). *Mapas de peligrosidad por avenidas e inundaciones*. Instituto Geolo¿gico y Minero de Espan¿a.

OLCINA, J., y DÍEZ-HERRERO, A. (2017). Cartografía de inundaciones en España. *Estudios geográficos*, 78 (282), 283-315. https://doi.org/10.3989/estgeogr.201710

PATRICOVA (2015). *Plan de acción territorial de carácter sectorial sobre prevención del riesgo de inundación en la Comunitat Valenciana*.

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PETTINARI, M. L., y CHUVIECO, E. (2020). Fire danger observed from space. *Surveys in Geophysics*, 41,

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SANCHIS, C., RUIZ, J. M., PALENCIA, J. S., y FRANCÉS, F. (2016). La cartografía regional de peligrosidad de inundación por criterios geomorfológicos en el Plan de Acción Territorial frente al Riesgo de Inundación en la Comunitat Valenciana (PATRICOVA). *Comprendiendo el relieve: del pasado al futuro: actas de la XIV Reunión Nacional de Geomorfología Málaga* (pp. 167-178). Instituto Geológico y Minero de España.

SORIANO GARCÍA, J., SANCHIS-IBOR, C., y CAMARASA BELMONTE, A. (2020). Integración de cartografías de inundabilidad en la Comunidad Valenciana (PATRICOVA Y SNCZI). *Desafíos y oportunidades de un mundo en transición. Una interpretación desde la Geografía* (pp. 211-223. Universitat de València.

Complementary:

BARRANCO, J. (2020). *Manual de lucha contra incendios forestales: nivel básico e intermedio*.

CAMARASA, A. M., LÓPEZ, M. J., y SORIANO J. (2011). Mapping temporally variable exposure to flooding in small Mediterranean basins using land-use indicators. *Applied Geography*, 31-1, 136-145.

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ROTHERMEL, R. C. (1983) *How to predict the spread and intensity of forest and range fires*. Gen. Tech. Rep. INT-143. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station.

SMITH, K. (2013). *Environmental Hazards. Assessing risk and reducing disaster*. Routledge.

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