COURSE DATA

DATA SUBJECT

Code: 33809
Name: Environmental Risks
Cycle: Undergraduate Studies
ECTS Credits: 6
Academic year: 2025-26

STUDY (S)

Degree	Center	Acad. year	Period
1318 - Degree in Geography and the Environment	Facultat de Geografia i Història	4	First quarter

SUBJECT-MATTER

Degree	Subject-matter	Character
1318 - Degree in Geography and the Environment	Environmental risks	COMPULSORY

COORDINATION

PORTUGUES MOLLA IVAN

SUMMARY

It is a compulsory subject of 6 credits located in the first semester of the 4th year of the Bachelor's Degree in Geography and Environment. It is a subject that allows the integration and articulation of the knowledge previously acquired in other subjects studied in previous years.

The objective of the subject is to introduce the student to the knowledge of natural and anthropic processes that pose a risk to the population. The first topic explains the basic concepts of the discipline and the different categories of risks. In the second, risk management bodies and instruments in Spain are explained. The rest of the topics, both theoretical and practical, are dedicated to the explanation of geomorphological risks of endogenous origin (volcanoes and earthquakes), of exogenous origin (mass movements, accelerated erosion, floods) and of climatic origin (cold and heat waves, hoses, hailstorms). In a third part, some topics are dedicated to the explanation of some risks of an anthropic nature (nuclear, chemical).

PREVIOUS KNOWLEDGE

RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE

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

OTHER REQUIREMENTS

Previous knowledge of climatology, hydrology, biogeography, geomorphology and planning are required.

COMPETENCES / LEARNING OUTCOMES

-

Be able to communicate effectively with non-experts.

Be able to learn independently and show creativity, initiative and entrepreneurship. Be able to resolve unforeseen situations.

Be able to relate the natural environment and the social and human spheres.

Be able to work independently.

Be able to work in interdisciplinary teams.

Get acquainted with geographic information systems as a tool for learning about and interpreting the territory 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 problem-solving skills and decision-making capacity. Be able to design and manage projects.

Have research skills.

Have skills for interpersonal relations and ability to adapt to complex situation.

Have skills for organisation, planning, management and assessment.

Learn about methodology and fieldwork.

Learn about territorial and environmental management. Be able to integrate the social, economic and environmental components under the sustainable development approach.

Learn about the time and space dimensions in the explanation of social, territorial and environmental processes.

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.

Show motivation for quality, responsibility and intellectual honesty.

DESCRIPTION OF CONTENTS

1. Environmental risks. Definitions and concepts

Definitions and concepts: risk, disasters and catastrophes. Classification of environmental risks. Risk and contemporary societies. Economic and ecological significance of natural and environmental disasters.

2. Risks in Spain. Civil Protection and Emergency Management

Civil protection and emergency management. The organization of civil protection in Spain. The Spanish political organizations and civil emergencies.

3. Vulcanism

Volcanoes. Volcanic areas and their causes. Types of eruptions. Eruptive dynamics. Prevention and monitoring of eruptions. Structural and non-structural measures to control the risk.

4. Earthquakes

Earthquakes. Seismic areas. Terratrèmols.Processos magnitude and intensity of an earthquake. Seismic waves. Prediction and prevention of earthquakes.

5. Mass movements

Mass movements. Types of movements. Mass moviment factors. Causes the mass movements. Prevention and prediction.

6. Meteorological and climatic risks

Meteorological and climatic risks. Heavy rains. Snow and avalanches. Winds. Heat and cold waves. Tropical storms. Tornados. Reduction of severe weather hazards. Climatic changes and associated risks. El Niño. The global warming.

7. Flood risk

Flood risk. Floods factors. Floods types. Natural factors that cause floods. Flooded areas and flood processes. Structural and non-structural measures for flood mitigation.

8. Forest fires

Forest fires. Fuel forestry inflammability and combustibility. Fire environmental factors: meteorological and topographical. Fire behavior in wildfires. Environmental consequences of forest fires in the Mediterranean ecosystems.

9. The nuclear risk

The nuclear risk. Ionizing radiation: Definitions and types. Radioactive phenomena. Radioactive elements. Type of radioactive decay. Dosimetry and magnitudes of measurement. Effects of radioactivity on living organisms. Nuclear and radioactive installations. Emergency plans.

10. Biological risks

Biological risks. Introduction and general concepts. Biological agents: classification. Epidemics caused by biological agents. Biological weapons and bioterrorism. Main measures of protection.

11. Pollution

Pollution. Introduction. Air pollution. The contamination of inland waters. Pollution of marine waters. The soil as a scrubber waste.

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Theory	30,00
Other activities	15,00
Computer classroom practice	15,00
Total hours	**60,00**

NON PRESENCIAL ACTIVITIES

Activity	Hours
Attendance at other activities	0,00
Individual or group project	30,00
Independent study and work	40,00
Preparation of lessons	20,00
Preparation for assessment activities	0,00
Resolution of case studies	0,00
Total hours	**90,00**

TEACHING METHODOLOGY

The teaching methodology is based on the combination of face-to-face classes and activities and autonomous work by the student.

1. Face-to-face theory classes:

The basic contents of the subject will be explained during the theory classes. For the teaching of the classes, there will be audio-visual material, the Virtual Classroom and the reference bibliography that the student will have to work on their own. The teacher will leave the presentations, graphics, web sheets and notes in the Virtual Classroom, in the resources module so that students can access them.

1. Face-to-face practical classes:

Classes will be held in the computer room. The exercises will be articulated in thematic units related to the theoretical topics. The guides to the exercises will be posted in the virtual classroom, along with the necessary material for their execution, which the students must take to class.

1. Complementary activities and field trip:

A series of complementary activities are planned, which will be carried out following the calendar specified in the annex, depending on the academic calendar of each course and the agendas of the collaborating bodies. Activities could include the following:

-Visit to the SAIH of the Júcar Hydrographic Confederation and possible visits to other centres.

- Field trip related to the incidence of one or more natural and/or environmental risks in the Valencian territory.

p>

EVALUATION

The assessment of the subject will be carried out as follows:

- Theory exam: 40% of the final grade.

- Practical exercises aimed at the classroom: 40% of the final grade.

- Group work and oral presentation: 10% of the final grade.

- Complementary activities: 10% of the final grade. Attendance at field trips and the visits contemplated will be part of this qualification.

A grade of 4 out of 10 in the theoretical exam is required to be able to make an average

with the Practical part (exercises, presentation, complementary activities)

The submission of work with an unacceptable percentage of copying (20%) will be grounds for failure of the entire subject.

Attendance at complementary activities and practical classes will be considered in the final grade.

The internships and all the complementary activities carried out during the course, apart from the final exam, will be considered continuous evaluation.

In the 2nd Call, the theoretical-practices evaluation criteria will be the same as in the 1st Call

REFERENCES

- Ayala-Carcedo, F.J. y Olcina Cantos, J. (coordinadores) (2002): Riesgos naturales. Ariel
- Bryant, E. (2005): Natural hazards. Cambridge University Press. 310 p.
- Keller, E. A. y Blodgett, R.H. (2007): Riesgos naturales : procesos de la Tierra como riesgos, desastres y catástrofes. Pearson Prentice Hall, D. L. 422 p.
- Olcina Cantos, J. (2006): ¿Riesgos naturales?. Davinci
- MIMAM (Ministerio de Medio Ambiente) (2000): Libro Blanco del Agua, Madrid.
- MMA (2005): Perfil ambiental 2005. Informes sobre el agua, el aire, residuos, medio urbano y resumen. http://www.mma.es/portal/secciones/calidad_contaminacion/indicadores_ambientales/perfil_ambiental_2005/index.htm
- Ilustre Colegio Oficial de Físicos (2000): Origen y gestión de residuos radiactivos. Enresa, Madrid, 203 pp.
- Chuvieco Salinero, Emilio (2004): Nuevas tecnologías para la estimación del riesgo de incendios

forestales. Madrid : Consejo Superior de Investigaciones Científicas, 2004.

- Vélez Muñoz, Ricardo (2009): La defensa contra incendios forestales [Recurs electrònic] : fundamentos y experiencias. Madrid, McGraw-Hill/Interamericana de España.