

**COURSE DATA****DATA SUBJECT****Code:** 35007**Name:** Environmental Changes: Scales and Processes**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 changes: processes and scales	ELECTIVES

COORDINATION

CAMARASA BELMONTE ANA

SUMMARY

<<Environmental Changes. Scales and Processes>> is a subject that focuses on the change in environmental systems that occur or have occurred on Planet Earth. The main processes and changes at different scales, both temporal and spatial, are addressed. In the large-scale changes in the planet's environmental history, those that occurred in the Pleistocene will prevail. In those of a historical scale, those that occurred in the Mediterranean and European spheres. In the current environmental changes, those on a global scale, such as climate change, will prevail.

PREVIOUS KNOWLEDGE**RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE**

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

OTHER REQUIREMENTS

Relationship with other subjects of the same degree

No enrollment restrictions have been specified with other subjects in the curriculum.

**COMPETENCES / LEARNING OUTCOMES****1318 - Degree in Geography and the Environment**

Have capacity for analysis and synthesis.

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.

DESCRIPTION OF CONTENTS

CONTENTS

Topic 1: The Earth System and the environmental changes. Scales and Factors

Introductory topic about the Earth system and the processes of environmental change at different spatial and temporal scales. Presentation of the fundamental factors that condition the change.

Topic 2: Internal change factors (I): Atmosphere and Hydrosphere

The main factors affecting global climate change are addressed: the atmosphere (Ozone, CFCs, albedo, greenhouse effect, atmospheric circulation, etc.) and the hydrosphere (currents, upwellings and downwelling, thermohaline currents, glaciations, sea level, etc.).

Topic 3: Internal change factors (II): Lithosphere and Biosphere

The main factors of change in the planet are addressed in the layers of the Lithosphere (tectonics, orogenic movements, volcanism) and the Biosphere (photosynthesis, evolution of life, human appearance, etc.)

Topic 4: External Factors: Solar Processes, Earth's Orbit, and Celestial Bodies

External factors of change to the planet are addressed: solar processes, changes in Earth's orbit, and the impact of celestial bodies.

Topic 5: Major Environmental Changes before the Quaternary

The major environmental changes that occurred on the planet during the Precambrian and Phanerozoic are explained.

Topic 6: Major Changes during the Quaternary and Historical Periods

The main changes that occurred during the Quaternary in relation to the glaciations are addressed. The Holocene and historical changes in Europe and the Mediterranean are also addressed.

**Topic 7: Current Changes and Forecasting Future Scenarios**

The main environmental changes currently taking place and their future projections are addressed and discussed.

WORKLOAD**PRESENCIAL ACTIVITIES**

Activity	Hours
Theory	30,00
Other activities	15,00
Classroom practices	15,00
Total hours	60,00

NON PRESENCIAL ACTIVITIES

Activity	Hours
Attendance at other activities	10,00
Individual or group project	20,00
Independent study and work	20,00
Preparation of lessons	20,00
Preparation for assessment activities	20,00
Resolution of case studies	0,00
Total hours	90,00

TEACHING METHODOLOGY

PRESENCIAL LESSONS. In the theory lessons, the basic aspects of each topic will be explained and information about the materials and recommended readings will be given. In the practices there will be debates, exhibitions of examples and exhibitions of works. Additional activities may include field trips, attending conferences or scientific workshops, discussion forums, presentations, etc.

PERSONAL WORK Students will be able to carry out one or several individual or collective works, among the topics suggested or accepted by the teacher, with different value depending on their length, degree of difficulty and degree of participation. At least one piece of work will be required.

PRESENCIAL TUTORIALS: They are free, and will be attended at the time set at the door of the teacher's office.

EVALUATION

In the evaluation, the continuous assessment of the work throughout the semester will be combined with a final exam. The evaluation of directed works will be combined -in which practical exercises are included as well as the supervised elaboration of short works-, the participation of complementary activities -field trips,



seminars and conferences- on which the students will elaborate brief memories that allow evaluating their learning, and taking an exam. The ability to carry out practical and applied work on real cases will be a fundamental element to evaluate the effectiveness of the learning process.

The evaluation model will be adjusted to the following percentages:

- Exam: 40%*
- Works and directed practices: 45%
- Complementary activities: 15%

*The final exam will be mandatory, covering theoretical and practical content. A minimum score of 4 out of 10 must be obtained to add the other activities to the exam grade. If this score is not obtained on the exam, the grades obtained on assignments, practical activities, and complementary activities will NOT be applied.

In the second examination session, the theoretical and practical criteria will be assessed in the same way as in the first.

REFERENCES

Basic:

- Costa, M. (1982): Pisos bioclimáticos y series de vegetación en el área valenciana. Cuadernos de Geografía, nº 31, pp.129-142
- De Dios Centeno, J., Fraile, M.J., Otero, M.A. y Pividal, A.J. 1994. Geomorfología práctica: ejercicios de fotointerpretación y planificación geoambiental. Madrid: Rueda.
- MINISTERIO DE MEDIO AMBIENTE (1998): Libro Blanco del Agua en España. 853p. Disponible en:
- Martínez Álvarez, J.A. 1991. Mapas geológicos: explicación e interpretación. Madrid: Paraninfo.
- Mulas, J. y Morillo-Velarde, M.J. (1997) Geología, COU Santillana, 399pp.
- Pérez Cueva, A.J. (1994): Atlas climático de la Comunidad Valenciana
- Strahler, A. y Strahler, A. (2003): Introducing Physical Geography, Wiley and Sons, 684 p.
- Ward, A.D. y Trimble, S.W. (2004): Environmental Hydrology, 2 edn., Lewis Publishers, BocaRaton Florida, 475p.

Complementary:

- AGUILERA, M.J.; BORDERÍAS, P.; GONZÁLEZ, P. y SANTOS, J.M. (1990): Ejercicios prácticos de Geografía Física, Universidad Nacional de Educación a Distancia, 676 p.
- CUSTODIO, E. y LLAMAS, R. (1996): Hidrología subterránea. Ed. Omega, 1157 pp
- Gutiérrez Elorza, M. 2008. Geomorfología. Pearson. 898 pp.
- De Pedraza Gilsanz, J. 1996. Geomorfología. Principios, métodos y aplicaciones. Madrid: Rueda.
- Guerra-Merchán, A. 1994. Mapas y cortes geológicos. Interpretación y resolución de problemas geológicos. Colección CEP. Malaga: Ciencia y Técnica
- MATEU, J. (1993): Hidrología, Geografía General I. Introducción a la Geografía Física, Bielza de Ory Ed., Taurus Universitaria, pp.250-294.



- Tejada, G. 1994. Vocabulario geomorfológico. Madrid: Akal.
- VV.AA. (1988): Guía de la naturaleza de la Comunidad Valenciana. Edicions Alfons el Magnànim, Generalitat Valenciana, 622pp.
- VV.AA. (2010): Biogeografía. Una ciencia para la conservación del medio. Universidad de Alicante, 510, p.