

Dynamics of Water, Energy and Natural Resources

Code: 104253
ECTS Credits: 6

Degree	Type	Year	Semester
2503710 Geography, Environmental Management and Spatial Planning	OB	3	1

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Teaching groups languages

You can check it through this [link](#). To consult the language you will need to enter the CODE of the subject. Please note that this information is provisional until 30 November 2023.

Teachers

Genis Riba Sanmartí

Prerequisites

Students must have a sufficient level of English to understand scientific texts in this language.

Objectives and Contextualisation

This is a compulsory subject of 6 ECTS corresponding to the third year of the Degree in Geography, Environment and Territorial Planning; located in the matter "Planning and management of natural resources". The subject offers general knowledge about this matter, with the possibility of deepening it through the optional subjects that the study plan contemplates in it.

The subject focuses, first of all, on tracing a conceptual and theoretical approach to the question of the use and management of natural resources and the debate on the limits of growth. Next, two areas of particular importance in relation to resources are addressed in more detail: the planning and management of the water cycle and the planning and management of energy systems.

With this subject, students will gain general knowledge about the management and social use of natural resources and common goods. Thus, the dynamics of water, energy and natural resources are addressed both from the perspective of their uses (with special attention to reuse), and from the perspective of the different forms of management (offer- demand; public-private; centralized-decentralized). The subject, on the other hand, also aims for students to know different instruments and mechanisms for the management and planning of both water resources and energy resources.

In the field of water cycle management, the aim is for students to learn about its dynamics both from a physical and socio-economic point of view, with special attention to its environmental dimension. Also, the students will

know and apply through practical work methods, techniques and instruments for the management of the water cycle.

In the field of energy, basic energy concepts are offered both in terms of energy sources (renewable and non-renewable) and in terms of planning and management of energy systems, both in terms of engineering environmental (generation, transport, distribution, commercialization and consumption of energy) as well as from the territorial, economic and institutional perspective.

Competences

- Draw up action and intervention plans in the territory which respond to sociodemographic and environmental problems.
- Students must be capable of applying their knowledge to their work or vocation in a professional way and they should have building arguments and problem resolution skills within their area of study.
- Students must develop the necessary learning skills to undertake further training with a high degree of autonomy.

Learning Outcomes

1. Identify the limits to growth related to the access and use of natural resources.
2. Identify the relationships between socioeconomic development, environmental sustainability and availability and access to natural resources.
3. Incorporate the different environmental, political and economic dimensions in a conceptual reflection of natural resources.
4. Students must be capable of applying their knowledge to their work or vocation in a professional way and they should have building arguments and problem resolution skills within their area of study.
5. Students must develop the necessary learning skills to undertake further training with a high degree of autonomy.

Content

Block I - Introduction to the management of natural resources

- Natural resources as common goods: governance models
- The production and use of natural resources in today's world: efficiency and limits to growth
- Great models of natural resource management

Block II - The water cycle

- The water cycle and socio-environmental problems
- Legal framework and planning instruments
- The large supply infrastructures
- Water in the rural world: ecosystems, food and energy
- The urban uses of water and its local management
- Water and risk: drought and floods

Block III - Energy systems

- History and Geography of the uses of energy
- Energy systems: definition, components and requirements
- Planning and management of energy systems

- Conflicts around energy
- The change of energy model

Methodology

The subject is divided into two halves. In the first of the halves, an introduction to the management of natural resources will be made and the planning and management of the water cycle will be discussed. In the second half, the management of energy systems will be addressed.

The teaching activities of the subject will be structured as follows:

Theory classes

The following activities will be carried out in the face-to-face theory sessions:

- Lectures: presentations by the teaching staff encouraging debate and student participation.
- Exercises aimed at the classroom: exercises based on the active participation of the students (usually through informal cooperative work) that will not require previous work.
- Cooperative work with preparation. Different formal cooperative work activities will be carried out based on the previous work of the students (readings or preparation of the activity). Some of these activities may require oral presentations by students.

Practices

A total of 10 practice sessions will be held in the classroom (5 for each half of the subject).

The teaching staff responsible for the practicals in the classroom will conveniently inform about the practical activity to be carried out in each session. As a result of these activities, the students will have to complete different assignments of practical exercises.

Field trips

There will be 2 field trips and the students will be able to choose which one to attend. Anyone who wants to can attend both outings.

As a result of each of the field trips, the students will have to make a report. The teaching staff will detail the contents and requirements of the same.

Attendance at at least one of the two outings is an essential requirement to be able to be evaluated for the subject.

At the beginning of the course, the teacher will explain the protocol of measures and good practices for field trips.

Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Field trip	8	0.32	2, 3, 4

Practices	15	0.6	4
Teoretical lessons	24	0.96	3, 5, 4
Type: Supervised			
Practical and fieldtrip exercices	15	0.6	1, 5, 4
Preparation of activities	5	0.2	1, 2, 3, 4
Tutorships	3	0.12	
Type: Autonomous			
Free tutorship	2	0.08	5, 4
Information research	15	0.6	5, 4
Personal study	35	1.4	1, 3, 5
Reading	25	1	2, 3

Assessment

The evaluation of the subject is based on:

- 2 partial exams (one for each half of the subject): 35%
- Practical exercises as a result of classroom practices (divided equally between the two halves of the subject): 35%
- Field trip report: 15%
- Deliveries and activities developed in theory sessions: 15%

The final mark will come from the weighted average of the four activities, but to pass the subject you must have passed the two partial exams and the practical exercises of the two halves of the subject.

It is necessary to respect the delivery dates of the tasks established by the teaching staff of the subject.

The grade corresponding to the assignments and the activities developed in the theory sessions will be obtained through the participation of the students in the various activities that the teaching staff may propose during the development of the theory sessions (debates, summaries, cooperative work , oral presentations...) Some of these activities may require prior preparation. Participation in these activities is not mandatory.

The evaluation of the field trip will be done by making a report on one of the two field trips organized during the course. To approve the subject, it is mandatory to attend at least one of the two field trips and hand in the corresponding report. Those who attend both field trips and submit both reports will have the average of both submissions credited with an additional point.

Review of grades

At the time of carrying out each assessment activity, the teacher will inform the students (through the Virtual Campus) of the procedure and date of review of the qualifications.

Recovery

You can make up the two partial exams and the practical exercises in the classroom. The report of the field trip and the handouts and activities of the theory sessions are not recoverable.

Not assessable

Anyone who has not completed and delivered the exam and/or report on at least one of the two field trips is considered non-evaluable.

Undelivered activities will be graded as zero (0).

Plagiarism

In the event that the student commits any irregularity that could lead to a significant variation in the grade of an assessment act, this assessment act will be graded with 0, regardless of the disciplinary process that may be instituted. In the event that several irregularities occur in the evaluation acts of the same subject, the final grade for this subject will be 0.

Single assessment

This subject does NOT provide for the single assessment system.

Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Exams	35%	3	0.12	2, 3, 5, 4
Field trip report	15%	0	0	1, 2, 5, 4
Practices and reports	35%	0	0	1, 2, 3, 4
Theory deliveries and activities	15%	0	0	1, 2, 3, 4

Bibliography

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Water

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Energy

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Software

None specific beyond the one used during the first two years of the degree.