

Degree	Type	Year
2504604 Environmental Sciences	OB	2

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Teachers

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Teaching groups languages

You can view this information at the [end](#) of this document.

Prerequisites

Be taking or have taken the courses of Anàlisi de la geoinformació, Recursos energètics i naturals, Planejament sostenible urbà i rural and Ciències del Mar of the new degree in Environmental Sciences.

Objectives and Contextualisation

The Projecte Integral II aims to address several practical environmental case studies that allow a diverse approach in line with the different courses taught throughout the semester. Socio-environmental dynamics and territorial and urban planning-analysis will be addressed in the Llobregat Delta case study. The most important conflicts in the territory and relevant policies, plans, programs and planning instruments will be analyzed. The subject will mainly integrate knowledge of geography and geology. Specifically, concepts and tools introduced during the semester in the subjects of Geoinformation Analysis, Energy and Natural Resources, Sustainable Urban and Rural Planning and Marine Sciences will be applied. The participation of expert professionals in specialized seminars related to the subject of study will be promoted. Students will work on group assignments and oral presentations on the studied area.

Learning Outcomes

1. CM30 (Competence) Evaluate real case studies on environmental problems and conflicts.

2. CM31 (Competence) Evaluate factors related to the Sustainable Development Goals associated with a specific environmental problem.
3. CM32 (Competence) Undertake environmental projects based on real case studies, working in small groups.
4. KM41 (Knowledge) Establish the main conflicts associated with territorial management and the policies, plans, programmes and planning instruments that condition it.
5. SM38 (Skill) Incorporate the scientific, technological and social knowledge associated with a specific available problem.
6. SM39 (Skill) Apply the main techniques and elements for environmental sampling and to obtain qualitative and quantitative data relevant to environmental sciences.
7. SM40 (Skill) Critically examine public and scientific information on the environment, in relation to a specific problem.
8. SM41 (Skill) Use techniques, material and instruments related to the collection of geological and/or biological samples in the field.

Content

The socio-ecological dynamics of the deltaic space will be analyzed, providing an overview of the existing conflicts and the impacts suffered by the actors in the territory. A detailed analysis of the main existing conflicts in the different sectors of the deltaic space will be carried out, paying attention to the history of the conflict, the actors involved and its management.

Through theoretical classes, expert seminars and field trips, students will analyze conflicts at different scales (as a whole of the delta, main sectors and internal dynamics in each sector). The territory will be divided into different sectors. Groups of 4-6 students will be created and a sector will be assigned to each of the groups. Each group of students will analyze and respond to existing conflicts in the assigned sector.

The sectors and some of the conflicts (and their planning), among others, to be studied, in each sector, are the following:

- The sea front: The processes of erosion, flooding and salinization of the aquifer and assessment of the effects on the beach and the beach. The planning and specific management of the territory will be analyzed.
- The Agricultural Park: Analysis of the types of production processes, changes in land use and human and environmental impacts on agricultural activity.
- Urban space: Urban expansion in the delta, demographic aspects, the imperviousness of the territory, flooding, pollution and urban planning.
- Natural spaces: Hydrodynamic and morphodynamic processes, the ecological state, pollution and human activities.
- The industrial-logistics zone: Economic activities, imperviousness and fragmentation of the territory and pollution.
- The infrastructures (Port, Airport, Water Treatments Plants and Desalination Plant): The operation and services provided, the social and environmental impacts they generate, water and flood management.
- The transportation ways: the associated economic activities, the imperviousness and fragmentation of the territory, the flood.
- The lower section of the Llobregat river: The artificialization of the riverbed, recreational activities, the ecological state and the contribution of sediments to the coastal area

Activities and Methodology

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Classroom practices	9	0.36	CM30, CM31, CM32, KM41, SM38, SM40
Expert seminars	3	0.12	CM30, CM31, KM41, SM38
Field trips	24	0.96	SM39, SM40, SM41
Laboratory practices	2	0.08	CM30, CM32, KM41, SM38, SM39
Theory classes	12	0.48	CM30, CM31, KM41, SM40
Type: Supervised			
Field trip preparation	1.5	0.06	CM30, CM32, SM38, SM39, SM40, SM41
Type: Autonomous			
Poster preparation	39	1.56	CM32, KM41, SM38, SM39, SM40, SM41
Report preparation	9.25	0.37	CM30, CM31, KM41, SM38, SM40
Study	50	2	CM30, CM31, CM32, KM41, SM38, SM40, SM41

The subject is divided into theoretical classes, seminars, laboratory practices, classroom practices and field trips.

Theory classes

The theory classes will include an introduction to environmental geology and fluvial and coastal morphology as well as explanations of qualitative and quantitative data analysis methodologies and territorial planning of the delta. The teachers will provide the students with the theoretical material through the Virtual Campus, which will require independent work on their part. In class they will make a synthetic presentation of the contents. In the last class, the different groups will present the poster, explaining the analysis of the conflicts in the assigned sector.

Laboratory practices

An applied GIS workshop will be conducted for students to locate the various geographic sectors and analyze the spatial processes associated with the Delta conflicts. The digital material will be offered in the practical classroom with the Faculty's computers and in the Virtual Campus.

Specialized seminars

Experts in the social and ecological processes of the delta will be invited to conduct three seminars on the geographical (two seminars) and geological (1 seminar) aspects of the delta conflicts. At the end of the seminars, the students will have to present a report detailing the convergences and divergences between experts.

Practice in the classroom

Preparation of the field trips: with the class as a whole and separately with each of the groups, an itinerary for each of the field trips will be created and the relevant elements for the specific analysis of the conflicts will be reviewed.

Orientation to do the work: after the trips, several sessions will be held with each group to guide the completion of the work and make follow-up tutorials.

Field trips

There will be three field trips of eight hours each. Two of these trips will allow the analysis of the geographical aspects of the conflicts and one of the geological/geomorphological aspects. For each sector, students will have an on-site explanation of existing conflicts and the application of existing planning. At the end of the trips, the students will have to present an analysis report of the main conflicts of the entire Delta del Llobregat.

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.

Assessment

Continous Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Attendance and participation in classroom activities	15%	0	0	CM30, CM31, CM32, KM41, SM38, SM39, SM40
Field trip report	20%	0	0	CM30, CM31, CM32, KM41, SM39, SM41
Poster presentation	45%	0.25	0.01	CM30, CM31, CM32, KM41, SM38, SM39, SM40, SM41
Seminar report	20%	0	0	CM30, CM31, KM41, SM38

The assessment is based on three different components (the seminar report, the field trip report, and the poster presentation) in addition to attendance and participation in classroom activities. This subject does not follow a single evaluation system.

Submitting both reports and the poster is mandatory to calculate the average of the evaluative elements. If this requirement is not met, the final grade will be marked as "not evaluated." The total value of the two reports constitutes 40% of the overall grade (20% for the seminar report and 20% for the field trip report). The poster presentation contributes 45% of the subject grade, while class participation accounts for 15%. To average the report grades with the poster and classroom participation, a minimum score of 3.5 is required for each component.

Regarding recovery, it will involve a written test covering the content of ALL presented posters.

It's important to note that copying or plagiarism of material, whether in assignments or exams, is considered an offense and will result in a zero for the activity. In case of recurrence, the entire subject will be suspended. "Copying" refers to reproducing all or a significant part of another student's work, while "plagiarism" involves presenting any portion of an author's text as one's own without proper citation, whether in print or digital format.

If a student engages in irregularities that significantly impact the evaluation, they will receive a grade of 0 for that assessment, regardless of any disciplinary process. Multiple irregularities in the evaluation components of the same subject will result in a final grade of 0.

Bibliography

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WEBGRAPHY

Mapa hidrogeològic del tram baix del Llobregat i el seu delta. Institut Cartogràfic de Catalunya, Institut Geològic de Catalunya, Comunitat d'usuaris d'aigües del Delta del riu Llobregat. <https://www.icgc.cat/es/Administracion-y-empresa/Servicios/Hidrogeologia/Otros-mapas-hidrogeologicos>

Software

The programs to be used in class are:

ArcMap, QGIS and MiraMon

Language list

Name	Group	Language	Semester	Turn
(PAUL) Classroom practices	1	Catalan	second semester	morning-mixed
(PAUL) Classroom practices	2	Catalan	second semester	morning-mixed
(PCAM) Field practices	1	Catalan	second semester	morning-mixed
(PCAM) Field practices	2	Catalan	second semester	morning-mixed
(PCAM) Field practices	3	Catalan	second semester	morning-mixed
(PCAM) Field practices	4	Catalan	second semester	morning-mixed
(PLAB) Practical laboratories	1	Catalan	second semester	afternoon
(PLAB) Practical laboratories	2	Catalan	second semester	afternoon
(PLAB) Practical laboratories	3	Catalan	second semester	afternoon
(PLAB) Practical laboratories	4	Catalan	second semester	afternoon
(SEM) Seminars	1	Catalan	second semester	morning-mixed
(TE) Theory	1	Catalan	second semester	morning-mixed