

**COURSE DATA****Data Subject**

Code	43270
Name	Environmental impact evaluation
Cycle	Master's degree
ECTS Credits	3.0
Academic year	2022 - 2023

Study (s)

Degree	Center	Acad. year	Period
2148 - M.D. in Biodiversity: Conservation and Evolution	Faculty of Biological Sciences	1	First term

Subject-matter

Degree	Subject-matter	Character
2148 - M.D. in Biodiversity: Conservation and Evolution	10 - Evaluation and management of ecosystems	Optional

Coordination

Name	Department
CARBO VALVERDE, ESTER	25 - Plant Biology
SACRISTAN MORAGA, DANIEL	25 - Plant Biology

SUMMARY

The subject Environmental Impact Assessment is taught as an option in the Master's Degree in Biodiversity: Conservation and Evolution, within the specialty Diversity and Conservation of Ecosystems, and consists of a total of 3 credits. It is a methodological subject in which students are expected to acquire the basic knowledge to develop an Environmental Impact Study and a Strategic Environmental Assessment Study. In this context, with the completion of the subject, students must develop the skills and abilities to address the contents of an Environmental Impact Study of a project and a Strategic Environmental Assessment Study of plans and program, satisfying the legal requirements present in the legislation and regulations applicable in each case according to the affected territory.



The subject has a methodological character and is of a theoretical-practical type, so that the knowledge on theoretical concepts is developed and applied in practical sessions, where questions and problems are solved. In addition, seminar sessions will be held, where students will discuss case studies based on publications in scientific articles, and also on actual studies processed in the regional or state administration.

The main lines showed in the program are developed considering the general concepts of Environmental Impact Assessment and Strategic Environmental Assessment, as complementary and necessary instruments for the environmental control of anthropogenic actions at different levels of land-use planning, focusing in the contents that must be developed in the Environmental Impact Studies and in the Strategic Environmental Assessment Studies as established by the applicable legislation, and including the methods and techniques to address the different phases and stages of such studies.

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.

OUTCOMES

2148 - M.D. in Biodiversity: Conservation and Evolution

- To acquire basic skills to develop laboratory work in biomedical research.
- Be able to make quick and effective decisions in professional or research practice.
- Be able to access the information required (databases, scientific articles, etc.) and to interpret and use it sensibly.
- Stimulate the capacity for critical reasoning and for argumentation based on rational criteria.
- Awaken interest in the social and economic application of science.

LEARNING OUTCOMES

With the completion of the subject students must be able to:

- Know the scientific basis of Environmental Impact Assessment (EIA) and Strategic Environmental Assessment (SEA),



- Analyze the legislation on EIA and SEA for its application in the elaboration of Environmental Impact Studies and Strategic Environmental Assessment Studies,
- Develop the procedure and contents of an Environmental Impact Study and a Strategic Environmental Assessment Study,
- Define criteria and properly apply methods and techniques to address the different stages of an Environmental Impact Study, such as project description, inventory, identification and assessment of environmental impacts, proposal of corrective and protective measures, development of the environmental monitoring plan and completion of the synthesis document; and also those of an Environmental Sustainability Report
- Identify the limitations in the assessment of environmental impacts and apply the procedures to try to address them,
- Develop and apply methods and techniques for the generation, evaluation and selection of alternatives allocation of uses in the territory.

DESCRIPTION OF CONTENTS

1. Environmental Impact Assessment, Land-Use planning and Strategic Environmental Assessment. (SECTION I: INTRODUCCIÓN).

Concept of Environmental Impact. Theoretical scheme of Strategic Environmental Assessment (EAE). Concept of Planning. Planning and EIA. EAE. Uncertainty and subjectivity.

2. Legislation on Environmental Impact Assessment and Strategic Environmental Assessment. (SECTION I: INTRODUCCIÓN).

Legislation on EIA i EAE in the European Union, Spain and Regional government. Administrative procedure un the Valencian Community to carry on an Environmental Impact Study and a Strategic Environmental Study. Public Participation.

3. Contents of an Environmental Impact study and a Strategic Assessment Study (SECTION II: CONTENTS OF AN ENVIRONMENTAL IMPACT STUDY).

Description of the project and the actions it involves. Analysis of the Alternatives. Environmental Inventory and Description of key environmental interactions. Identifying and evaluating Impacts. Establishment of protective measures. Environmental Monitoring plan. Summary. Contents of the Informe de Sostenibilitat Ambiental.

**4. Environmental Inventory and mapping. Impact Indicators (SECTION II: CONTENTS OF AN ENVIRONMENTAL IMPACT STUDY).**

Aspects that affect the environmental inventory. Definition of environmental units: methods and techniques for the preparation of environmental mapping. Selecting variables. Selecting a minimum impact indicator set. Integration methods of environmental indicators.

5. Identification and Evaluation methodologies of environmental impacts. Uncertainty Analysis and Evaluation (SECTION III: IMPACT EVALUATION METHODOLOGIES).

Methods based on conventional units. Methods based on physical units. Methods based on monetary units. Uncertainty analysis: Compared studies, Scenario Analysis and sensitivity analysis.

6. Land Capacity-Impact Models. Multicriteria methods and techniques (SECTION IV: GENERATING AND SELECTING ALTERNATIVES).

Models based on thematic mapping. Models based on integrated units. Land Capacity methods. Evaluating alternatives: methods and procedures.

7. Environmental Monitoring Program (SECTION V: ENVIRONMENTAL MONITORING IN ENVIRONMENTAL IMPACT ASSESSMENT).

Protective Measures on the actions of the project. Measures for significant impacts. Measures on the location of actions. Environmental monitoring program: the importance of monitoring the impacts. Monitoring indicators.

WORKLOAD

ACTIVITY	Hours	% To be attended
Theory classes	20,00	100
Laboratory practices	10,00	100
Development of group work	5,00	0
Preparation of evaluation activities	10,00	0
Preparing lectures	15,00	0
Preparation of practical classes and problem	10,00	0
Resolution of case studies	5,00	0
TOTAL	75,00	



TEACHING METHODOLOGY

The development of the subject is structured in theory sessions, practice sessions (problems) and in the presentation of a work in a seminar session of 1 hour.

In theory classes, the student will receive an overview of the topic by the teacher, who will focus on the key concepts necessary to understand the subject. The student will previously have the material that will be worked in class, so that there is an active participation of him/her in class, by means of questions, proposal of examples, discussion of concepts, etc. The teacher will indicate the students the most suitable material and resources for the in-depth study of the subject.

In the **practical classes**, the student will have to solve a problem posed by the teacher about the contents of the program. The approach to the problem will specify the objectives to be achieved, the material to be used and the methods and techniques to be applied. The work will be carried out in groups of 3-5 students, with the purpose of encouraging the interaction between the students, the coordination of the work in a team and the synergy at the time of facing and solving problems. The teacher will be in charge of guiding and helping them at all times, explaining the procedures for the development and resolution of each problem.

The student will be guided by the teacher on all elements of the learning process, both questions related to theoretical and practical classes.

In the **seminar sessions** each group of students (maximum five people) will make an oral presentation of a work to the whole class. The purpose of these seminars is to motivate students in the activity of research, analysis and evaluation of information. In addition, interactions between students for teamwork are enhanced, so that coordination and synergy in the development and resolution of problems are stimulated, aspects of great relevance to address an Environmental Impact Study.

EVALUATION

During the development of the subject, both in the theoretical and practical classes, there will be a continuous evaluation of the attitude, interest and progress made by the student. This assessment may represent up to 10% of the final grade.

In the Practice Report (Problems) students must outline the procedure followed for solving the problem, commenting on the advantages and disadvantages of the methods and techniques applied. Also, they must present and discuss the results according to the objectives set, and comment on the conclusions achieved. This Report, which must be submitted in order to take the exam, may not affect the final grade, or decrease it or increase it by up to 20%. Attendance to the practical classes will be compulsory. The presentation of the work in the seminar sessions in which a case study related to the contents of the subject will be discussed may represent up to 10% of the final grade.

There will be a final written exam that will include 35-40 multiple choice questions (test type), being the most accurate the correct answer. The questions can be made both from the theory and practical classes. The final mark of the written exam will be 60% of the final grade.



To pass the subject, you must obtain a grade equal to or higher than 5 (out of 10) in the final written exam. After passing the exam, the % corresponding to the continuous assessment, the practical Report and the presentation of work in the seminar will be considered and accounted for, in order to obtain final grade.

REFERENCES

Basic

- CANTER, L.W. (1998). Manual de Evaluación de Impacto Ambiental. Técnicas para la Elaboración de Estudios de Impacto. Mc Graw-Hill. Madrid.
- CONESA FERNÁNDEZ-VITORA, V. (2010). Guía Metodológica para la Evaluación de Impacto Ambiental. 4ª Edición. Ed. Mundi-Prensa. Madrid.
- GARMENDIA, A., SALVADOR, A., CRESPO, C. Y GARMENDIA, L. (2007). Evaluación de Impacto Ambiental. Ed. Pearson-Prentice Hall. Madrid.
- GOMEZ OREA, D. (2003). Evaluación del Impacto Ambiental. Segunda Edición. Editorial Agrícola Española, SA-Ed. Mundi-Prensa. Madrid.
- GOMEZ OREA, D. (2007). Evaluación Ambiental Estratégica. Ed. Mundi-Prensa. Madrid.
- OÑATE, J.J., PEREIRA, D., SUAREZ, F., RODRÍGUEZ, J.J. Y CHACON, J. (2002). Evaluación Ambiental Estratégica: la evaluación ambiental de Políticas, Planes y Programas. Ed. Mundi-Prensa. Madrid.
- MOPU (1985). Curso sobre Evaluaciones de Impacto Ambiental. Dirección General del Medio Ambiente. Ministerio de Obras Públicas y Urbanismo. Madrid.
- RECATALÁ, L. (1995). Propuesta metodológico para Planificación de los usos del territorio y Evaluación de Impacto Ambiental en el ámbito Mediterráneo Valenciano. Tesis Doctoral. Universitat de València. Servei de Publicacions de la Universitat de València.
- WESTMAN, W.E. (1985). Ecology, Impact Assessment and Environmental Planning. John Wiley & Sons. New York.

Additional

- Artículos publicados en revistas científicas especializadas: Environmental Impact Assessment Review, Journal of Environmental Mngement, Environmental Management, Soil Use and Management, etc.