



Universitat de Lleida

DEGREE CURRICULUM
**ENVIRONMENTAL
MANAGEMENT**

Coordination: RAMOS MARTIN, MARIA CONCEPCION

Academic year 2023-24

Subject's general information

Subject name	ENVIRONMENTAL MANAGEMENT				
Code	102569				
Semester	2nd Q(SEMESTER) CONTINUED EVALUATION				
Typology	Degree	Course	Character	Modality	
	Bachelor's Degree in Agricultural and Food Engineering	4	COMPULSORY	Attendance-based	
Course number of credits (ECTS)	6				
Type of activity, credits, and groups	Activity type	PRACAMP	PRALAB	PRAULA	TEORIA
	Number of credits	0.6	0.4	1.2	3.8
	Number of groups	1	1	1	1
Coordination	RAMOS MARTIN, MARIA CONCEPCION				
Department	ENVIRONMENT AND SOIL SCIENCES AND CHEMISTRY				
Teaching load distribution between lectures and independent student work	40% classes: classroom and videoconferenes 60% personal work				
Important information on data processing	Consult this link for more information.				
Language	Catalanish:25% Spanish: 75%				

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
PALAU IBARS, ANTONIO JUAN	antoni.palau@udl.cat	1,5	
RAMOS MARTIN, MARIA CONCEPCION	mariaconcepcion.ramos@udl.cat	4,5	

Subject's extra information

The course aims to depp on the knowledge and use of techniques of land management and planning as well as on the management of the environment and the landscape. It addresses topics of ecology applied to the management of natural ecosystems and agrosystems, and planning and landscape restoration, with special emphasis on aspects and problems that affect ecosystems such as erosion, pollution, eutrophication, invasive alien species, habitat fragmentation, and climate change.

Learning objectives

The student, to pass the course , must be able to

- Plan and defend arguments environmental management actions
- Manage basic environmental problems associated with aquatic ecosystems
- Planning conservation measures to mitigate erosion and desertification problems
- Planning conservation measures to dremediate contaminated soils
- Plan actions to decrease the effects of climate change on soil and water resources
- Environmental legislation management

Competences

Basic, skills

CB1. That students have demonstrated and understand knowledge in an area of study that starts from the basis of general secondary education, and is usually found at a level that, while supported by advanced textbooks, also includes some aspects that involve knowledge from the forefront of their field of study.

CB2. That students know how to apply their knowledge to their work or vocation in a professional way and possess the skills that are usually demonstrated through the elaboration and defense of arguments and the resolution of problems within their area of study

CB3. That students have the ability to gather and interpret relevant data (usually within their area of study) to make judgments that include reflection on relevant social, scientific or ethical issues

CB4. That students can transmit information, ideas, problems and solutions to both a specialized and non-specialized audience

CB5. That students have developed those learning skills necessary to undertake further studies with a high degree of autonomy.

General skills

Competències generals

CG7. Knowledge in basic, scientific and technological subjects that allow continuous learning, as well as a capacity to adapt to new situations or changing environments

CG8. Ability to solving problems with creativity, initiative, methodology and critical reasoning.

Specific skills

CEHJ3. Ability to know, understand and use the principles of: Environmental and landscape engineering. Environmental legislation and management; Principles of sustainable development; Market and practice strategies; Valuation of environmental assets.

CEHJ4: Ability to know, understand and use the principles of: Hydrology. erosion

CEHJ5: Ability to know, understand and use the principles of: Plant material: production, use and maintenance; Ecosystems and biodiversity; Physical environment and climate change.

CEHJ6: Ability to know, understand and use the principles of: Analysis, management and Territorial Planning Plans. Principles of landscaping.

CEHJ7. Ability to know, understand and use the principles of: Specific design tools and graphic expression; Practical development of environmental impact studies; Environmental and landscape restoration projects; Projects and plans for the maintenance of green areas; Development projects. Instruments for the planning of the territory and the landscape; Management and planning of projects and works.

Subject contents

Temari

1-Ecological principles applicable to environmental management. Basic concepts. Organization and functioning of natural ecosystems and agrosystems. Environmental assessment index. 0.8c

T1. Taxonomic and ecosystem organization of the biosphere. ecosystem. Biocenosis and Biotope. community. Ecological niche. Biological types. demography. Habitat (ecological, physical, useful). Biodiversity and ecological diversity. Ecosystem services.

T2. Trophic organization. Flow of matter and energy. Biomass, Production, Productivity. Trophic networks. Renewal fee. Limiting factors. regulation. Trophic waterfalls

2- Physical environment: degradation and conservation. Hydrological processes. 1c

3- Land degradation processes. Management practices and conservation measures.. Physical, social, and institutional interactions affecting management practices. Erosion and desertification. Contamination 3.2c

4- Aquatic ecosystems: operation and management of water resources. Surface water quality. Invasive species. 0,7c

Invasive exotic species: The case of the zebra mussel.

Aquatic ecosystems. Surface water quality. Types, organisation and functioning of aquatic ecosystems. Reservoirs: Regulation of water resources.

Environmental problems (cases). Eutrophication. Irrigation channels: ecological functions and margin management. Barrier effect of channels and nodes. Water resources, irrigation and climate change.

Environmental crop management criteria.

5- Climate -Change Processes, scenarios and vulnerability. Effects of climate change on degradation processes and farming. Responses at national and international level: proposals for mitigation and adaptation 0.3c

Practical activities

1- Recognition of degraded areas and conservation measures

2- Design of conservation measures

3- Case studies of contaminated soil rehabilitation

4- Problems and cases. Calculation of the useful physical hybrid for a specie.

5- Directed activity 1: Prácticas de análisis rápido de la calidad de las aguas superficiales.

6- Directed activity 2: Trabajo por supuesto (in format of scientific article) on a topic to choose between the two serious issues:

Water, energy, biodiversity, production, market, profitability, sustainability in: (i) irrigation vs dry; (ii) irrigated in "blanket" vs pressurized; (iii) organic farming vs traditional.

Irrigation and climate change: (i) extreme weather events; (ii) adaptation and mitigation measures; (iii) impact of DC on irrigation and dry land.

Methodology

Type of activity	Description	Classrom activity		Personal work		Grading	Time
		Objectives	Hours	Personal work	Hours	Hours	Hours/ECTS
Lliçó magistral	Master class (Big group)	Explanation of principal concepts	36	Study, learn , understand and synthesize knowledges	40	1	77h/3.08
Exercices and case study	Participative class (Medium Group)	Problem and case solving	16	Learn to solve problems and cases	20	1	37h/1.48
Field activities	Classe participativa (Medium Group)	Understand and discuss problems and solutions in the field	5	To prepare a report	10		15h/0.60

Active learning activities	Laboratory (Medium group) and driven activities	To orient the student on the treball (in time of tutorials)		To prepare a report including informaiton taken from differnet sources and references.	20	1	21h/0.84
-----------------------------------	---	---	--	--	-----------	----------	-----------------

Observations

1 ECTS= 25h

Development plan

Type of activity	Description	Classrom activity		Personal work		Grading	Time
		Objectives	Hours	Personal work	Hours	Hours	Hours/ECTS
Lliçó magistral	Master class (Big group)	Explantion of principal concepts	36	Study, learn , understand and synthesize knowledges	40	1	77h/3.08
Exercices and case study	Participative class (Medium Group)	Problem and case solving	16	Learn to solve problems and cases	20	1	37h/1.48
Field activities	Classe participativa (Medium Group)	Understand and discuss problems and solutions in the field	5	To prepare a report	10		15h/0.60
Active learning activities	Laboratory (Medium group) and driven activities	To orient the student on the treball (in time of tutorials)		To prepare a report including informaiton taken from differnet sources and references.	20	1	21h/0.84

Evaluation

The evaluation will consist of three blocks of activities:

Block 1: Written tests

2 written tests on the contents of the course syllabus, with a weight of 15% each (total of 30%). They will take place in the last week of the calendar proposed by the Directorate of Studies. It will be necessary to obtain a minimum mark of 5/10 points in each of them.

Block 2: Individual case studies

Individual work: (Proposal of a soil conservation measures plan) weight 30%: a report on the proposed case will be handed in. The deadline for submission is the date of the exam (in the last week of the course in the calendar proposed by the Directorate of Studies). A mark of 5/10 will be required to pass the course.

Individual work: (Calculation of the physical habitat of species), weight 3% of the grade. A report on the proposed case will be handed in. The deadline for submission is the date of the exam (in the last week of the course of the calendar proposed by the direction of studies).

Individual work (Analysis of the relationship between agriculture and the environment), weight 7% of the mark. A report on the proposed case will be handed in. The deadline for submission is the date of the exam (in the last week of the course of the timetable proposed by the Directorate of Studies).

Block 3: Group case studies Group work (treatment of soil contamination): weight 22.5% of the mark. A group work will be handed in on the proposed case study, which will be presented and discussed in class following the schedule proposed in the course and according to the calendar proposed by the Director of Studies.

Alternative assessment: Students who request alternative assessment must take an exam on the scheduled date (in the last week of the course of the calendar proposed by the Director of Studies). This exam will have a weight of 45% of the mark. On the same date, students will have to present work carried out independently on the cases proposed in blocks 2 and 3, which will have a weight of the remaining 55% of the mark.

Bibliography

Bibliografia bàsica

Ayers, R.S., D.W. Westcot. 1987. La calidad del agua de riego en la agricultura. Estudio FAO Riego y Drenaje., 29 Rev 1. Roma.

Jimenez Ballesta, R. Introducción a la contaminación de suelos. Ed, MundiPrensa. 2017

Margalef, R. (1981): "Ecología". Ed. Omega, S.A. Barcelona. 252 pp.

Morgan, R.P.C. 2005. Soil Erosion and Conservation, 3rd edition. Blackwell Publishing, Oxford. Hudson, N. 1982. Conservación del suelo. Reverté. Barcelona

Pierzynski, G.M., J.T. Sims & G.F. Vance. 1994. Soils and Environmental Quality. Lewis Publishers. CRC Press, Boca Raton. Florida

Terradas, J. (1979): "Ecologia d'avui". Ed Teide, S.A. Barcelona. 142 pp

Bibliografia complementària

Ayers, R.S., D.W. Westcot. 1987. La calidad del agua de riego en la agricultura. Estudio FAO Riego y Drenaje., 29 Rev 1. Roma.

Lal, R., Blum, W.H., Valentin, C. (Eds). 1998. Methods for assessment of soil degradation. Springer-Verlag. Berlin.

Margalef, R. (1977): "Ecología". Ed. Omega, S.A. Barcelona. 951 pp.

Margalef, R. (1991): "Teoría de los Sistemas Ecológicos". Ed. Publicacions de la Universitat de Barcelona. (Col. Estudi General 1. Ciències Experimentals i Matemàtiques). Barcelona. 290 pp.

Pimentel, D. (ed.) 1993. World soil erosion and conservation. Cambridge studies in applied ecology and resource

management. Cambridge University Press. Cambridge.

Wanielista, M.P.1990. Hydrology and water quantity control. John Wiley and Sons Inc., NewYork, (USA).

Schwab, G.O., Fagmeier, D.D., Elliot, W.J., and Frevert, R.K. 1993. Soil and water conservation engineering. 4 ed. Wiley, New York.