Water, Energy and Land Management 2015/2016

Code: 43063
ECTS Credits: 9

Degree	Type	Year	Semester
4313784 Interdisciplinary Studies in Environmental, Economic and Social Sustainability	OT	0	2

Contact

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Use of languages

Principal working language: english (eng)

Teachers

Juan López Redondo

Prerequisites

Oral and written English skills

Objectives and Contextualisation

The module pretends to introduce students to current debates on the management of water and energy resources, emphasizing the territorial dimension. An attempt will be made to collect case studies at different scales in different areas of the world on these issues although a certain Mediterranean focus is to be expected.

The course will pay special attention to contrasting conventional management models based on centralized tecnologies, expert approaches and "top-down" management, with more alternative resources, decentralized technologies and a participatory processes open to larger segments of society. Both models will be compared in terms of governance and another very important element of the course will be the analysis of the territorial conflicts arising in the application of these management models.

Through readings of selected materials, presentations by instructors (and occasionally by invited guests) and class presentations and discussions students are expected to gain a basic, robust knowledge on water and energy alternatives and of their diferent governance frameworks.

Skills

- Apply knowledge of environmental and ecological economics to the analysis and interpretation of environmental problem areas.
- Integrate knowledge and use it to make judgements in complex situations, with incomplete information, while keeping in mind social and ethical responsibilities.
- Solve problems in new or little-known situations within broader (or multidisciplinary) contexts related to the field of study.
- Work in an international, multidisciplinary context.

Learning outcomes

1. Integrate knowledge and use it to make judgements in complex situations, with incomplete information, while keeping in mind social and ethical responsibilities.

2. Know different models for managing water and energy, especially at the regional level.
3. Solve problems in new or little-known situations within broader (or multidisciplinary) contexts related to the field of study.
4. Understand new forms of water and energy governance.
5. Understand the main territorial, social and environmental conflicts associated with water and energy management.
6. Work in an international, multidisciplinary context.

Content

Introduction to the course, organization and distribution of the readings by topic. Lecture: The water-energy nexus
The governance of large conventional hydraulic technology : reservoris and water transfers
The governance of large alternative hydraulic technology: desalination and water reuse
The change of scale. Governance of decentralized water resources: groundwater, greywater and rainwater
Managing water demand: technology vs economy
Managing water demand: the behavioral component
Managing water demand: the role of structural factors
Integrated water management in cities: the liberal view
Integrated water management in cities: the emancipatory view
Energy efficient Territories: land use and social metabolism
Fossil energy sources, "peak oil" and climate change
Energy security and risk management: nuclear energy and social movements
Renewable Energy I: solar and wind energy
Renewables II: biological energy
Electricity governance: production, distribution and marketing
Final energy consumption: Towards a demand management
Social innovation and local development: cities in transition and energy cooperatives
Conclusions: synthesis and comparative analysis of management models of water and energy resources

Methodology

The class will follow a seminar format consistint first on a brief introduction to the specific topic given by the instructor followed by the presentation of course work (assigned readings) by students, the group discussion of the main points discussed in the readings, and a final conclusion coordinated by the instructor. In some sessions we will have an invited speaker. Students are expected to read the assigned materials; prepare and guide discussions and participate actively in the debates

Activities

Title	Hours	ECTS	Learning outcomes
Type: Directed			
Preparation of oral presentations	10	0.4	
Readings	25	1	
Resolution of case studies	12	0.48	
Seminars	7	0.28	
Type: Supervised			
Personal study	6	0.24	
Preparation of papers	10	0.4	

Readings	40	1.6
Tutorials	4	0.16
Type: Autonomous		
Case studies	25	1
Lectures	35	1.4
Oral presentations	45	1.8

Evaluation

Active participation in class (25%)
Oral presentations (25%)
Resolution of cas estudies (10%)
Paper to be discussed with instructors (40%)

Evaluation activities

Title	Weighting	Hours	ECTS	Learning outcomes
Class participation	20 %	2	0.08	2, 5, 4, 3, 1, 6
Practical exercises	40%	2	0.08	2, 5, 4, 3, 1, 6
Take Home Exam	40%	2	0.08	2, 5, 4, 3, 1, 6

Bibliography

Bibliography (Water)
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Scheer, H. 2009. Autonomía energética. Barcelona: Icària
(A more comprehensive readinglist will be distributed at the beginning of each part)