

Water, Energy and Land Management

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)

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 technologies, 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 different 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

1. Planning, water and energy

- Nature, society and power
- Planning and management
- The water-energy nexus

2. Water and energy supply

- Large conventional hydraulic technology: reservoirs and water transfers
- Large alternative hydraulic technology: desalination and water reuse
- Fossil energy sources, "peak oil" and climate change
- Energy security and risk management: nuclear energy and social movements
- Renewal energy: solar, wind and biological energy

3. Water and energy demand

- Technology vs economy
- The behavioral component
- The role of structural factors

4. The politics of scale

- Scalar effects and multilevel governance
- Centralized and decentralized models
- Governance of decentralized water resources: groundwater, greywater and rainwater
- Electricity governance: production, distribution and commercialization

5. Commodification, social protection and emancipation

- Privatization and municipalization
- Water and energy as social needs
- Governance of the commons and governance as commons
- Integrated water management in cities: the liberal vs the emancipatory view
- Social innovation and local development: cities in transition and energy cooperatives

Methodology

The following activities will be carried out:

a) Lectures. In some sessions we will have an invited speaker.

b) Seminars: a brief introduction to the specific topic given by the instructor followed by the presentation of assigned readings by students, the group discussion of the main points discussed in the readings, and a final conclusion coordinated by the instructor. Students are expected to read the assigned materials; prepare and guide discussions and participate actively in the debates.

c) Case studies: a case study or a practical exercise will be presented and the students will have to solve it.

Activities

Title	Hours	ECTS	Learning outcomes
Type: Directed			
Case studies	8	0.32	3, 1, 6
Infographic presentation	9	0.36	3, 1, 6
Lectures	15	0.6	2, 5, 4
Seminars	19	0.76	2, 5, 4, 3, 1, 6
Type: Supervised			
Assigned readings	37	1.48	2, 5, 4, 1
Case study preparation	10	0.4	3, 6
Infographic production	15	0.6	3, 1, 6
Tutorials	4	0.16	3
Type: Autonomous			
Information gathering	45	1.8	1, 6
Personal study	25	1	2, 5, 4
Readings	35	1.4	2, 5, 4

Evaluation

Exam: take home exam at the end of the course

Practical exercises: to be solved at class.

Oral presentation: from the assigned readings.

Participation: participation at seminar debates

Evaluation activities

Title	Weighting	Hours	ECTS	Learning outcomes
Class participation	5 %	0	0	3, 1

Exam	60%	3	0.12	2, 5, 4, 1
Infographics	10%	0	0	3, 1, 6
Oral presentation	15%	0	0	2, 5, 4, 1, 6
Practical exercises	10%	0	0	3, 1, 6

Bibliography

Bibliography (Water)

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Renwick ME, Archibald SO. 1998. Demand side management policies for residential water use: Who bears the conservation burden? *Land Economics* 74:343-59.

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Bibliography (Energy)

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Scheer, H. 2011. *Imperativo energético*. Barcelona: Icària

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(A more comprehensive readinglist will be distributed at the beginning of the course)