

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

The proposed teaching and assessment methodology that appear in the guide may be subject to changes as a result of the restrictions to face-to-face class attendance imposed by the health authorities.

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.

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.

Competences

- 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: The Water Energy Nexus

From the Hydrological Cycle to the Hydrosocial Cycle

The large scale: Dams, Aqueducts, Desalination Plants

The small scale: Greywater, Rainwater Harvesting, Urban Drainage

The next resource?: Reclaimed Water

Water and Cities: domestic consumption

Virtual Water and the Water Footprint

Water and Disasters

Water: Commodity or Right?

Political Ecology of Energy: soft and hard energy paths

Energy, Planning and Management

Primary energy sources: a geopolitical approach

Multilevel governance and the politics of scale

Energy, social innovation and local development

Energy as a social need

Land use conflicts

Energy policies in the European Union

Methodology

The following activities will be carried out in the classroom:

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

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.

Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Lectures	15	0.6	2, 5, 4
Seminars	50	2	2, 5, 4, 1, 3, 6
Type: Supervised			
Assigned readings	37	1.48	2, 5, 4, 1
Tutoring	25	1	3
Type: Autonomous			
Personal study	25	1	2, 5, 4
Readings	70	2.8	2, 5, 4

Assessment

Two exams: one at the end of the water part and the other at the end of the energy part

Oral presentations of assigned readings.

Participation in seminar debates

Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Class participation	10 %	0	0	1, 3
Oral presentation	10%	0	0	2, 5, 4, 1, 6
Paper II (Energy)	35 %	1.5	0.06	2, 5, 4, 1, 3, 6
Paper I (Water)	45 %	1.5	0.06	2, 5, 4, 1, 3, 6

Bibliography

Bibliography (Water)

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- Baumann DD, Boland JJ, Hanemann WM. 1998. Urban Water Demand Management and Planning. New York: MacGraw Hill
- Boelens, R., Perreault, T. and Vos, H. (eds) (2018) Water Justice. Cambridge: Cambridge University Press
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- Sultana, F. and Loftus, A (eds) 2012 *The right to Water. Politics, governance and social struggles*. London: Earthscan.
- Swyngedouw, E. *Social Power and the Urbanization of water* Oxford: Oxford University Press
- Troy P, ed. 2008. *Troubled Waters: Confronting the Water Crisis in Australian Cities*. Canberra, Australian University Press
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- Willis RM, Stewart RA, Panuwatwanich K, Williams PR, Hollingsworth AL. 2011. Quantifying the influence of environmental and water conservation attitudes on household end use water consumption. *Journal of Environmental Management* 92:1996-2009
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- Yudelson J. 2010. *Preventing the Next Urban Water Crisis*. Gabriola Island, BC: New Society

Bibliography (Energy)

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- Boyle, G. (Ed.). 2004. *Renewable energy: power for a sustainable future*. Oxford: Oxford University Press.
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- Droege, P. (Ed.). 2008. *Urban energy transition: from fossil fuels to renewable power*. Amsterdam: Elsevier.
- Patterson, W. 2007. *Keeping the light on: towards sustainable electricity*. London: Earthscan.
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Scheer, H. 2011. Imperativo energético. Barcelona: Icària
Scheer, H. 2009. Autonomía energética. Barcelona: Icària
(A more comprehensive readinglist will be distributed at the beginning of the course)

Software

No required software