Universitat Autònoma de Barcelona

2022/2023

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.

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.

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 polítics 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 otehr 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)
Bakker K. 2010 Privatizing Water. Governance Failure and the World's Urban Water Crisis. Ithaca, NY: Cornell Univ. Press
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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Inman D, Jeffrey P. 2006.A review of residential water conservation tool performance and influences on implementation effectiveness. Urban Water Journal 3: 127-43.
Prud'homme A. 2011. The Ripple Effect: The Fate of Freshwater in the Twenty-First Century. New York: Scribner
Renwick ME, Archibald SO. 1998. Demand side management policies for residential water use: Who bears the conservation burden? Land Economics 74:343-59.
Sauri, D. 2013: Water Conservation: Theory and Evidence in Urban Areas of the Developed World Annual Review of. Environment and Resources38:1-22.
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 theWater Crisis in Australian Cities. Canberra, Australian University Press
UNESCO. 2012. The UN World Water Development Report: Managing Water under Uncertainty and Risk. Paris: UNESCO
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
World Economic Forum. 2011. Water Security. TheWater-Food-Energy Nexus.Washington, DC: Island.
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. Osford: Oxford University Press.
Boyle, G. (Ed.). 2007. Renewable electricit & the grid: the challenge of variability. London: Earthscan Publications.
Boyle, G.; Everett, B. I Ramage, J. (Eds.). 2003. Energy systems and sustainability. Oxford: Oxford University Press.
Droege, P. (Ed.). 2008. Urban energy transition: from fossil fuels to renewable power. Amsterdam: Elsevier.
Patterson, W. 2007. Keeping the light son: towards sustainable electricity. London: Earthscan.
Perlin, J. 1999. From Space to Earth: the story of solar electricity.. AATEC Publications.
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