

**Water, Energy and Land Management**

Code: 43484  
ECTS Credits: 6

Degree	Type	Year	Semester
4313300 Regional and Population Studies	OT	0	2

## Contact

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## Prerequisites

Oral and written English skills

## Use of Languages

Principal working language: english (eng)

## 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.

## Competences

- Detect the complexity of territorial and demographic dynamics and recognize the most efficient management mechanisms, particularly in conflict situations
- 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.
- Use English in different formats and contexts.

## 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 the main territorial, social and environmental conflicts associated with water and energy management.
5. Use English in different formats and contexts.

## Content

Introduction: The Water Energy Nexus

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From the Hydrological Cycle to the Hydrosocial Cycle

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The large scale: Dams, Aqueducts, Desalination Plants

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The small scale: Greywater, Rainwater Harvesting

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The next resource?: Reclaimed Water

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Water and Cities: domestic consumption

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Virtual Water and the Water Footprint

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Water and Disasters

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Water: Commodity or Right?

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Water and Tourism

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Political Ecology of Energy: soft and hard energy paths

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Energy, Planning and Management

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Primary energy sources: a geopolitical approach

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Multilevel governance and the politics of scale

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Energy, social innovation and local development

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Energy as a social need

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Land use conflicts

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Energy policies in the European Union

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## 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.

## Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Lectures	6	0.24	3
Oral presentation	6	0.24	1
Seminars	20	0.8	
Type: Supervised			
Preparation of oral presentations	5	0.2	1
Readings	21	0.84	2, 4
Tutorials	4	0.16	2, 4, 1, 3
Type: Autonomous			
Personal study	27	1.08	2, 4, 1, 3
Preparation of papers	34	1.36	3
Readings	23	0.92	2

## Assessment

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

- Oral presentation of assigned readings
- Participation in class debates

VERY IMPORTANT: Total or partial plagiarism of any of the exercises will automatically be considered "fail" (0) for the plagiarized item. Plagiarism is copying one or more sentences from unidentified sources, presenting it as original work (THIS INCLUDES COPYING PHRASES OR FRAGMENTS FROM THE INTERNET AND ADDING THEM WITHOUT MODIFICATION TO A TEXT WHICH IS PRESENTED AS ORIGINAL). Plagiarism is a serious offense. Students must learn to respect the intellectual property of others, identifying any source they may use, and take responsibility for the originality and authenticity of the texts they produce.

## Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Exam Energy Part	30 %	2	0.08	2, 4, 5, 1, 3
Exam water part	40%	2	0.08	2, 4, 1, 3
Oral presentation	20%	0	0	2, 4, 5, 1
Participation	10%	0	0	5, 1, 3

## Bibliography

A set of class readings will be distributed at the beginning of the course

### 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

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European Environment Agency. 2009. Water resources across Europe—confronting water scarcity and drought. EEA Rep. No. 2/2009, EEA, Copenhagen

Fielding KS, Russell S, Spinks A, Mankad A. 2012. Determinants of household water conservation: the role of demographic, infrastructure, behavior and psychosocial variables. Water Resources Research 48(10)

Gandy M 2014 The fabric of Space. Water, Modernity and the Urban Imagination. Cambridge MA: The MIT Press

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 Resources 38:1-22.

Sedlak, D. 2014 Water 4.0. New Haven, Conn: Yale University Press

Sultana, F. and Loftus, A (eds) 2012 The Right to Water. Politics, governance and social struggles. London: Earthscan.

Swyngedouw, E. 2004 Social Power and the Urbanization of water Oxford: Oxford University Press

Swyngedouw, E. 2015 Liquid Power. Contested Hydro-Modernities in Twentieth Century Spain. Cambridge, MA: The MIT Press

Troy P, ed. 2008. Troubled Waters: Confronting the Water 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. The Water-Food-Energy Nexus. Washington, DC: Island.

Yudelson J. 2010. Preventing the Next Urban Water Crisis. Gabriola Island, BC: New Society

#### Bibliography (Energy)

Becker, S., & Kunze, C. (2014). Transcending community energy: Collective and politically motivated projects in renewable energy (CPE) across Europe. *People, Place and Policy Online*, 8(3), 180-191. <https://doi.org/10.3351/ppp.0008.0003.0004>

Bouzarovski, S., & Petrova, S. (2015). A global perspective on domestic energy deprivation: Overcoming the energy poverty-fuel poverty binary. *Energy Research & Social Science*, 10, 31-40. <https://doi.org/10.1016/j.erss.2015.06.007>

Bridge, G., Barca, S., Özkaynak, B., Turhan, E., & Wyeth, R. (2018). Towards a Political Ecology of EU Energy Policy. In C. Foulds & R. Robison (Eds.), *Advancing Energy Policy* (pp. 163-175). [https://doi.org/10.1007/978-3-319-99097-2\\_11](https://doi.org/10.1007/978-3-319-99097-2_11)

Burningham, K., Barnett, J., & Walker, G. (2015). An Array of Deficits: Unpacking NIMBY Discourses in Wind Energy Developers' Conceptualizations of Their Local Opponents. *Society & Natural Resources*, 28(3), 246-260. <https://doi.org/10.1080/08941920.2014.933923>

Connolly, D., Lund, H., & Mathiesen, B. V. (2016). Smart Energy Europe: The technical and economic impact of one potential 100% renewable energy scenario for the European Union. *Renewable and Sustainable Energy Reviews*, 60, 1634-1653. <https://doi.org/10.1016/j.rser.2016.02.025>

Correljé, A., & van der Linde, C. (2006). Energy supply security and geopolitics: A European perspective. *Energy Policy*, 34(5), 532-543. <https://doi.org/10.1016/j.enpol.2005.11.008>

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Middlemiss, L., & Gillard, R. (2015). Fuel poverty from the bottom-up: Characterising household energy vulnerability through the lived experience of the fuel poor. *Energy Research & Social Science*, 6, 146-154. <https://doi.org/10.1016/j.erss.2015.02.001>

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