Universitat Autònoma de Barcelona

2023/2024

Foundations of Ecological Economics

Code: 42407
ECTS Credits: 9

Degree	Type	Year	Semester
4313784 Interdisciplinary Studies in Environmental, Economic and Social Sustainability	OT	0	1

Contact

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Teaching groups languages

You can check it through this link. To consult the language you will need to enter the CODE of the subject.
Please note that this information is provisional until 30 November 2023.

Teachers

Jeroen Van Den Bergh

Lewis Carl King

Jesus Ramos Martin

Sergio Villamayor Tomas

Prerequisites

No aplica.

Objectives and Contextualisation

The course will introduce the field of ecological economics, paying attention to theoretical, methodological and empirical issues. Classic themes, important debates and recent research foci will receive attention. At the end of the course the student is expected to have a good understanding of the main themes, theories and methods addressed by ecological economics, including:

- the origins and principles of ecological economics;

- concepts and typologies of welfare, externalities and (quasi-)public goods;

- the performance of environmental and climate policy instruments;

- theory and methods of environmental valuation;

- property rights theory as applied to natural resource management

- modes of environmental governance

- institutional analysis of natural resource management

- multi-scale integrated assessment and social multi-criteria evaluation;

- assessment and valuation of ecosystem services;

- the growth-versus-environmental debate and the ideas of degrowth and agrowth;

- core differences between how environmental and ecological economics conceptualize environmental problems and derive solutions;

Competences

- Apply knowledge of environmental and ecological economics to the analysis and interpretation of environmental problem areas.
- Communicate and justify conclusions clearly and unambiguously to both specialised and non-specialised audiences.
- Communicate orally and in writing in English.
- Continue the learning process, to a large extent autonomously.
- Integrate knowledge and use it to make judgements in complex situations, with incomplete information, while keeping in mind social and ethical responsibilities.
- Seek out information in the scientific literature using appropriate channels, and use this information to formulate and contextualise research in environmental sciences.
- Work in an international, multidisciplinary context.

Learning Outcomes

1. Adopt a holistic perspective on the relationship between the economy and biophysical systems.
2. Communicate and justify conclusions clearly and unambiguously to both specialised and non-specialised audiences.
3. Communicate orally and in writing in English.
4. Continue the learning process, to a large extent autonomously.
5. Differentiate between the approaches to environmental problems of environmental and ecological economics.
6. Integrate knowledge and use it to make judgements in complex situations, with incomplete information, while keeping in mind social and ethical responsibilities.
7. Know the role of the institutions in environmental governance.
8. Seek out information in the scientific literature using appropriate channels, and use this information to formulate and contextualise research in environmental sciences.
9. Work in an international, multidisciplinary context.

Content

The FEE course involves a series of 3-hour lectures organized in four main sub-modules under the responsibility of specific teachers. Some teachers may provide slides in advance through the CV but others may not. All readings will be available on Moodle or provided in electronic format by the teacher through other means.

Introduction (JvdB)

1. Principles of ecological economics and comparison with environmental economics (24/10)

Sub-Module 1: Environmental and climate economics (JvdB & LK)

2. Welfare, markets, externalities and public goods (26/10)

3. Theories and methods of environmental valuation (31/10)

4. Environmental policy instruments (2/11)

5. Economics of climate policy (7/11)

Sub-Module 2: Institutional economics and environmental applications (SV)

6. Introduction institutional economics (9/11)

7. Basics of game theory and coordination problems (10/11)

8. Property rights and the theory of the commons (14/11)

9. Environmental governance: Markets, governments and communities (16/11)

Sub-Module 3: Methods for integrated assessment (JR)

10. Social multi-criteria evaluation - SMCE (21/11)

11. SMCE in practice (23/11)

12. Analysis of the metabolism of societies (24/11)

13. Case studies of metabolism of societies (28/11)

14. Environmental valuation and ecosystem services (30/11)

Sub-Module 4: From steady-state economics to degrowth (JR)

15. Ecological macroeconomics and system dynamics (5/12)

16. Political ecological economics (12/12)

17. Alternative economic practices (14/12)

Debate (LK)

18. Environment-versus-growth (19/12)

19. Exam (30/1)

Methodology

Lectures will involve time for questions/ answers, debates, role-play exercises and video-material. Students will be expected to prepare for the class by going in advance through the compulsory readings suggested in the bibliography. Participation, tests and essays may involve individual and group work.

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			
In-class activities and discussion in class	8	0.32	3, 6, 2, 4, 9
Lectures	46	1.84	6, 4
Type: Supervised			
Mandatory readings	60	2.4	5, 4
Type: Autonomous			
Reading articles, books and studying for each of the given lectures and the final exam	48	1.92	7, 1, 5, 6, 4, 9
Three short essays which involve reading the necessary literature to write the essays	60	2.4	8, 6, 4, 9

Assessment

This module does not offer Single Assessment, as agreed with the coordination of the degree and with the Dean's Office of the Faculty of Sciences.

Students will be assessed on the basis of a closed-book exam and three essays:

The exam contributes to 50% of the final mark. It will cover aspects of each module of the course. Students will have limited space to answer each of these questions and will have to show that they have understood and mastered key concepts and ideas introduced during the course. The contributing

teachers will evaluate the exam together.

Essays

1) A 500-words essay explaining one's position in the environment-versus-growth debate, corresponding to the last lecture of the course. To be submitted as a hard copy in class to Lewis King. This contributes to *10% of the final mark*.

2) A 1000-words essay discussing critically a statement related to the sessions 7-10, to be submitted by email to Sergio Villamayor. This contributes to *20% of the final mark.*

3) A 1000-words argumentative essay discussing critically The European Green Deal strategy from a biophysical perspective, to be submitted by email to Jesús Ramos. This contributes to *20% of the final mark.*

Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes

3 short essays	50%	0	0	8, 3, 7, 5, 6, 2, 4, 9
Final Exam	50%	3	0.12	8, 3, 7, 1, 5, 6, 2, 4, 9

Bibliography

The literature marked with (*) is obligatory and must be read prior to each lecture since it will be the basis for the respective class. The other literature mentioned is voluntary background reading but students are encouraged to read as much as they can.

1. Principles of ecological economics and comparison with environmental economics

(*) van den Bergh, J.C.J.M. 2000. Ecological Economics: Themes, Approaches, and Differences with

Environmental Economics. *Regional Environmental Change*, 3(1): 13-23.

Martinez-Alier, J., Roca Jusmet, J. 2000. Economía Ecológica y Política Ambiental. PNUMA y Fondo de Cultura Económica, Mexico, D.F..

Røpke, I. 2005. Trends in the development of ecological economics from the late 1980s to the early 2000s. *Ecological Economics* 55: 262-290.

2. Welfare, markets, externalities and public goods

(*) Kahn, J.R. 2011. *The Economic Approach to Environmental and Natural Resources*. 3rd edition,

Thomson/South-Western, Fort Worth, Mason, Ohio. ch. 2; & ch. 4, section "What is Value".

(*) Verhoef, E.T. 1999. Externalities. Chapter 13 in: J.C. J.M. van den Bergh (ed.). *Handbook of Environmental and Resource Economics*. Edward Elgar, Cheltenham, pp. 197-214.

3. Theories and methods of environmental valuation

(*) Perman et al., Valuing the Environment, Chapter 4 in *Natural Resource and Environmental Economics*

Martinez-Alier, J., Munda, J., O'Neill, J. 1998. Weak comparability of values as a foundation for ecological economics. *Ecological Economics* 26: 277-286.

Gsottbauer, E., I. Logar and J. van den Bergh (2015). Towards a fair, constructive and consistent criticism ofall valuation languages: Comment on Kallis et al. (2013). *Ecological Economics* 112: 164-169.

4. Environmental policy instruments

(*) Harris, J. M., & Roach, B. 2018. *Environmental and natural resource economics: A contemporary approach*. Routledge. 176-198

van den Bergh, J., Castro, J., S. Drews, F. Exadaktylos, J. Foramitti, F. Klein, T. Konc and I. Savin (2021). Designing an effective climate-policy mix: Accounting for instrument synergy. *Climate Policy* 21(6): 745-764.

5. Global climate policy

(*) Harris, J. M., & Roach, B. 2018. *Environmental and natural resource economics: A contemporary approach*. Routledge. 353-368

(*) Baranzini, A, J. van den Bergh, S. Carattini, R. Howard, E. Padilla and J. Roca (2017). Carbon pricing in climate policy: Seven reasons, complementary instruments, and political-economy considerations. *WIREs Climate Change* 8(4), e462.

King, L. C., & Van Den Bergh, J. C. 2019. Normalisation of Paris agreement NDCs to enhance transparency and ambition. *Environmental Research Letters*, *14*(8), 084008.

6. Introduction institutional economics

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(*) Vatn, A., (2007), 1. Institutions the web of human life, in Vatn, A. *Institutions and the Environment*: Edward Elgar Publishing (pp. 1-20)

Hodgson, G. M. (1998), The Approach of Institutional Economics, *Journal of Economic Literature, 36*(1), 166-192.

Ostrom, E. (1998), A Behavioral Approach to the Rational Choice Theory of Collective Action: Presidential Address, American Political Science Association, 1997, *The American Political Science Review, 92*(1), 1-22.

Hall, P. A., and R. C. R. Taylor (1996), Political Science and the Three New Institutionalisms*, *Political Studies, 44*(5), 936-957.

7. Basics of game theory and coordination problems

(*) Bowles, S., (2009), Social interactions and institutional design, in Bowles, S., *Microeconomics: behavior, institutions, and evolution*: Princeton University Press (pp. 23-56).

Varian, H. R., and J. Repcheck, (2010), Chapters 28 and 29, in Varian, H.R., and J. Repcheck, *Intermediate microeconomics: a modern approach*, (Vol. 6): WW Norton & Company New York, NY.

8. Property rights and the theory of the commons

(*) Cole, D. H., G. Epstein,and M. D. McGinnis (2014), Digging deeper into Hardin's pasture: the complex institutional structure of 'the tragedy of the commons', *Journal of Institutional Economics, 10*(3), 353-369.

(*) Bromley, D. W., & Hodge, I. (1990). Private property rights and presumptive policy entitlements: reconsidering the premises of rural policy. *European Review of agricultural economics*, *17*(2), 197-214.

Schlager, E., and E. Ostrom (1992), Property-Rights Regimes and Natural Resources: A Conceptual Analysis, *Land Economics, 68*(3), 249-262.

9. Environmental governance: Markets, governments and communities

(*) Vatn, A. (2010), An institutional analysis of payments for environmental services, *Ecological Economics, 69* (6), 1245-1252.

(*) Ostrom, E. (2010), Polycentric systems for coping with collective action and global environmental change, *Global Environmental Change, 20*(4), 550-557.

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Lemos, M. C., and A. Agrawal (2006), Environmental governance, *Annu. Rev. Environ. Resour., 31*, 297-325.

Muradian, R. (2013), Payments for ecosystem services as incentives for collective action, *Society & Natural Resources, 26*(10), 1155-1169.

10. Social multi-criteria evaluation - SMCE

(*) Cattaneo, C., and Baulcomb, C. (2016): *Social Multi-Criteria Analysis*. Tutorial Booklet. Will be uploaded to the platform.

(*) Munda, G. (2004): "Social multi-criteria evaluation: methodological foundations and operational consequences", *European Journal of Operational Research*, Vol 158(3): Pp 662-677.

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11. SMCE in practice

(*) Gamboa, G. (2006): "Social multi-criteria evaluation of different development scenarios of the Aysén region, Chile", *Ecological Economics*, 59(1): 157-170.

Walter, M., Latorre Tomás, S., Munda, G., Larrea, C. (2016): "A social-multicriteria evaluation approach to assess extractive and non-extractive scenarios in Ecuador: Intag case study", Land Use Policy, Vol. 57: 444-458.

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12. Analysis of the metabolism of societies

(*) Giampietro, M., Mayumi, K., Ramos-Martin, J. (2009): "Multi-scale integrated analysis of societal and ecosystem metabolism (MuSIASEM): Theoretical concepts and basic rationale", *Energy* 34(3): 313-322.

(*) Gerber, J.F. and Scheidel, A. (2017): "In search of substantive economics: comparing today's two major socio-metabolic approaches to the Economy - MEFA and MuSIASEM", *Ecological Economics*, 144: 186-194

Haberl, H., Fischer-Kowalski, M., Krausmann, F., Weisz, H., Winiwarter, V. (2004): "Progress towards sustainability? What the conceptual framework of material and energy flow accounting (MEFA) can offer", *Land Use Policy*, Vol. 21 (3): 199-213.

13. Case studies of metabolism of societies

(*) Pérez-Sánchez, L., Giampietro, M., Velasco-Fernández, R., Ripa, M. (2019): "Characterizing the metabolic pattern of urban systems using MuSIASEM: The case of Barcelona", *Energy Policy*, Vol. 124: 13-22.

(*) Samaniego, P., Vallejo, M.C., Martínez-Alier, J. (2017): "Commercial and biophysical déficits in South America, 1990-2013", *Ecological Economics*, Vol. 133: 62-73.

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14. Environmental valuation and ecosystem services

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15. Ecological macroeconomics and system dynamics

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(*) Nieto, J., Carpintero, O., Lpbejón, L.F., Miguel, L.J. (2020): "An ecological macroeconomics model: The energy transition in the EU", *Energy Policy*, Vol. 145: 111726.

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16. Political ecological economics

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(*) Svarstad, H., Benjaminsen, T.A. (2020): "Reading radical environmental justice through a political ecology lens", *Geoforum*, Vol. 108: 1-11.

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17. Alternative economic practices

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18. The environment-versus-growth debate

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Software

None