

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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Use of languages

Principal working language: english (eng)

Teachers

Jeroen Van Den Bergh
Sergio Villamayor Tomás

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. Valuation methods that cut across ecological and environmental economics will also be explored.

At the end of the course the student is expected to have a good understanding of:

1. The main themes, theories and methods addressed by ecological economics, including: the origins and principles of ecological economics, the idea of welfare and externalities, environmental and climate policy instruments, complex systems, environmental governance and conflicts, environmental and multi-criteria valuation, ecosystem services and the growth/degrowth debate;
2. The basic literature regarding ecological economics;
3. The essential differences between the way environmental problems and solutions are approached in environmental economics and ecological economics;
4. New methods that have been proposed by, and are applied within, ecological and environmental economics, such as environmental valuation methods, multi-scale integrated assessment, and social multi-criteria evaluation.
5. Key issues in the emerging field of degrowth studies.

Skills

- 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 organised 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 need to be found by the student from internet and academic library sources (e.g. Scopus, Web of Knowledge) available on the UAB campus.

Sub-Module 1: Foundations, Policy & Innovation (JvdB)

1. History and principles of ecological economics (comparing with traditional environmental economics)
2. Welfare, markets, externalities and public goods
3. Environmental policy instruments
4. Theories and methods of environmental valuation
5. Economics of climate policy
6. The environment-versus-growth debate

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

7. Introduction institutional economics
8. Basics of game theory and coordination problems
9. Property rights and the theory of the commons
10. Environmental governance: Markets, governments and communities

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

1. Introduction to analysis of social metabolism
2. Social multi-criteria evaluation - SMCE
3. SMCE in practice

Sub-Module 4: From Steady-State economics to degrowth (CC)

1. Ecological macroeconomics and SystemDynamics
2. Introduction to the core arguments of degrowth
3. Political Ecological Economics
4. Well-being and happiness economics
5. Solidarity economies

Methodology

Lecturers will present a given topic and students will be expected to prepare for the class reading in advance the compulsory readings suggested in the bibliography. Lectures will involve time for questions and answers and for discussion; they might also involve role-play exercises and video-material. In class participation, tests and essays preparation will involve group and individual work, respectively.

Activities

Title	Hours	ECTS	Learning outcomes
Type: Directed			
Lectures	54	2.16	6, 4
Presentation and discussion in class	8	0.32	3, 6, 2, 4, 9
Type: Autonomous			
2 short essays, and tests at the beginning of classes which involve reading the necessary literature to write the essays	60	2.4	8, 6, 4, 9
Reading articles, books and studying for each of the given lectures and the final exam	100	4	7, 1, 5, 6, 4, 9

Evaluation

Students will be assessed on the basis of (a) a written, closed-book exam; b) written essays, and c) their participation in class. In particular, they will be assessed based on:

- *Presence and participation in lectures:* at least 75-80% of all lectures; absence should be justified.
- *A final exam, contributing 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.
- *Written exercises and class tests*

1) A 500-words personal statement corresponding to the last lecture of the course, focused on the environment-versus-growth debate, and to be submitted in class and to Jeroen van den Bergh, contributing to 10% of the final mark.

2) A 1000-words argumentative essay discussing critically a statement related to the sessions 7-10, to be submitted by email to Sergio Villamayor, and contributing to 20% of the final mark; the question(the statement to be discussed will be formulated in session 10)

3) Team-based closed-answer tests to be answered at the beginning of classes and based on the mandatory readings of the corresponding classes, and contributing to 20% of the final mark:

Evaluation activities

Title	Weighting	Hours	ECTS	Learning outcomes
2 short essays and tests at the beginning of classes	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. History and principles of Ecological 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.

Ropke, 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. 2004. *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. Environmental policy instruments

(*) Russell, C.S., Powell, P.T. 1999. Practical considerations and comparison of instruments of environmental policy. Chapter 21 in: J.C.J.M. van den Bergh (ed.). *Handbook of Environmental and Resource Economics*. Edward Elgar, Cheltenham, pp. 307-328.

Sterner, T. 2003. *Policy Instruments for Environmental and Natural Resource Management*. Resources for the Future (RFF Press), Washington D.C., USA, 504 pages.

4. Theories and methods of environmental valuation

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

Hanley, N., Spash, C.L. 1993. Cost-Benefit Analysis and the Environment. Edward Elgar Publishers, Aldershot.

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

5. Economics of climate policy

(*) Executive summary of The Stern review: *The Economics of Climate Change* (2006).
http://news.bbc.co.uk/2/shared/bsp/hi/pdfs/30_10_06_exec_sum.pdf

(*) McKibbin, W.J., Wilcoxon, P.J. 2002. The role of economics in climate change policy. *Journal of Economic Perspectives* 16(2): 107-129.

J.C.J.M. van den Bergh (2010). Safe climate policy is affordable - 12 reasons. *Climatic Change* 101(3): 339-385.

Responses to / debate on the Stern review (<http://www.hm-treasury.gov.uk/6520.htm>).

Tol, R.S.J. (2009). The economic effects of climate change. *Journal of Economic Perspectives* 23(2): 29-51.

6. The environment-versus-growth debate

(*) Beckerman, W. 1992. Economic growth and the environment. *World Development*, 20(4): 481-496.

(*) Daly, H.E. 2005. Economics in a full world. *Scientific American* 293(3).

(*) van den Bergh, J., de Mooij, R. 2002. Growth and the environment in Europe: a guide to the debate. *Empirica*, 29: 79-91.

Kallis, G. 2011. In defence of degrowth. *Ecological Economics*, 70(5): 873-880.

van den Bergh, J.C.J.M. 2009. The GDP Paradox. *Journal of Economic Psychology*, 30(2): 117-135.

van den Bergh, J.C.J.M. 2011. Environment versus growth - A criticism of "degrowth" and a plea for "a-growth?" *Ecological Economics*, 70(5): 881-890.

Introduction institutional economics

(*) Paavola, J., and W. N. Adger (2005), Institutional ecological economics, *Ecological Economics*, 53(3), 353-368.

(*) 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.

8. 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), Chapter 28, in Varian, H.R., and J. Repcheck, *Intermediate microeconomics: a modern approach*, (Vol. 6): WW Norton & Company New York, NY (pp. 505-519)

Varian, H. R., and J. Repcheck, (2010), Chapter 29, in Varian, H.R., and J. Repcheck, *Intermediate microeconomics: a modern approach*, (Vol. 6): WW Norton & Company New York, NY (pp. 505-519)

9. 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.

(*) Ostrom, E., J. Burger, C. B. Field, R. B. Norgaard, and D. Policansky (1999), Revisiting the commons: local lessons, global challenges, *Science*, 284(5412), 278-282.

Agrawal, A. (2001), Common Property Institutions and Sustainable Governance of Resources, *World Development*, 29(10), 1649-1672.

Ostrom, E. (2007), A diagnostic approach for going beyond panaceas, *Proceedings of the National Academy of Sciences*, 104(39), 15181-15187.

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

10. 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.

Acheson, J. M. (2006), Institutional Failure in Resource Management, *Annual Review of Anthropology*, 35, 117-134.

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.

11. Analysis of Social metabolism: MEFA, MuSIASEM, MultiEROI

(*) 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, pp.:186-194

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

(*) Tello, E. et al 2017. Opening the black box of energy throughputs in farm systems: a decomposition analysis between the energy returns to external inputs, internal biomass reuses and total input consumed (the Valles county, Catalonia, c.1860 and 1999). *Ecological Economics* 121, pp.:160-174

Ramos-Martín J., Cañellas-Boltà S., Giampietro M., Gamboa G., 2009. Catalonia's energy metabolism: Using the MuSIASEM approach at different scales. *Energy Policy*, vol 37, (2009), p 4658-4671.

D'Alisa G. and Cattaneo, C., 2013. Household work and energy consumption: a degrowth perspective. Catalonia's case study. *Journal of Cleaner Production* 38, pp.:71-79

12. 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. Social multi-criteria evaluation: methodological foundations and operational consequences. *European Journal of Operational Research*; Vol 158(3): Pp 662-677.

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

European Environmental Agency. Late lessons from early warnings. The precautionary principle in Europe. <https://www.eea.europa.eu/publications/late-lessons-2>

13. SMCE in practice

A Multi Criteria exercise will be practiced by student teams in class. Information about the exercise will be uploaded on the platform.

14. Ecological Macroeconomics and System Dynamics

(*) Hardt, L. and D. O'Neill (2017) "Ecological Macroeconomic Models: Assessing Current Developments", *Ecological Economics*, 123, 198-211.

Jacobs, M. (2012) "Green Growth: Economic Theory and Political Discourse", Centre for climate change economics and policy working paper, 108.

Jänicke, M. (2012). "Green growth": From a growing eco-industry to economic sustainability. *Energy Policy*, 48, 13-21.

Highlights of the lecture:

We present and critically discuss the green growth approach.

We introduce and investigate the ecological macroeconomics literature

Whysystem dynamics is a powerful tool for policies evaluation

A post-growth model of Ecological Macroeconomics (EUROGREEN)

15. From Steady State to Degrowth - introduction of the core arguments of degrowth

(*) Kerschner, C., 2010. Economic de-growth vs. Steady state economy. *Journal of Cleaner Production*, 18 pp.:544-551

(*) Demaria, F., Schneider, F., Sekulova, F. and Martinez-Alier, J., 2013. What is degrowth? From an activist slogan to a social movement. *Environmental Values*, 22 pp.:191-215

16. Political Ecological Economics - integrating the ideas of political ecology to those of ecological economics

(*) Kallis, G. 2018. The economic process revisited. Chapter 2 in Kallis, G. *Degrowth*. Agenda Publishing

(*) Kallis, G. 2017. Economics without growth. Chapter 2 in Castells M. et al. (Eds), *Another economy is possible*, Polity Press.

Kallis, G. *Indefense of degrowth. Opinions and minifiestos*. (Chapters 2 and 3)
<https://indefenseofdegrowth.com>

17. Well-being and happiness economics

(*) [Sekulova F., van den Bergh J.C.J.M. 2014. Climate change, income and happiness: An empirical study for Barcelona". *Global Environmental Change* 23\(6\), pp.: 1467-1475](#)

(*) Easterlin, R.A. (2003), 'Building a better theory of well-being', *IZA Discussion Paper No. 742*, Institute for the Study of Labor, Bonn.

<http://www-bcf.usc.edu/~easterl/papers/BetterTheory.pdf>

Diener, E. and R. Biswas-Diener (2002), 'Will money increase subjective well-being? A literature review and guide to needed research', *Social Indicators Research*, 57 (2), 119-69.

Easterlin, R.A. (2013), 'Happiness and economic growth: the evidence', in *Global Handbook of Well-Being and Quality of Life*, *IZA Discussion Paper No. 7187*, Institute for the Study of Labor, Bonn.

18. Solidarity economies

(*) Miller, E. 2009. Solidarity Economy - Key concepts and issues. In Kawano et al., (Eds) *Solidarity Economy I: Building alternatives for people and planet*. Center for Popular Economics.

Gritzas G. and Kavoulakos, I. 2015. Diverse economies and alternative spaces: An overview of approaches and practices. *European Urban and Regional Studies*, 1-18

Conill, J., Castells, M., Cardenas, A. and Servon, L.J. 2012. Beyond the crisis: alternative economic practices in Catalonia. In Castells et al. (Eds) *Aftermath. The cultures of the economic crisis*. Oxford University Press

Varvarousis, A and Kallis, G. 2017. Commoning against the crisis. Chapter 6 in Castells M. et al. (Eds), *Another economy is possible*, Polity Press.