

## Fonaments d'Economia Ecològica

2014/2015

Codi: 42407

Crèdits: 9

Titulació	Tipus	Curs	Semestre
4313784 Estudis Interdisciplinaris en Sostenibilitat Ambiental, Econòmica i Social	OT	0	1

### Professor de contacte

Nom: Esteve Corbera Elizalde

Correu electrònic: Esteve.Corbera@uab.cat

### Utilització de llengües

Llengua vehicular majoritària: anglès (eng)

Grup íntegre en anglès: No

Grup íntegre en català: Sí

Grup íntegre en espanyol: No

### Equip docent

Jeroen Van Den Bergh

### Equip docent extern a la UAB

Arild Angelsen

Erik Gómez-Baggethun

### Prerequisites

If not native English speaker: valid IELTS (with a minimum score of 6.5) or TOEFL (minimum 550 paper based, 213 computer based, 79 web-based) score report or a Cambridge Certificate of Proficiency in English or Cambridge Certificate in Advanced English.

Students should preferably hold an undergraduate degree with relevance to environmental or ecological economics, although students taught in geography, ecology, political science are also welcome and should in principle be able to follow the course.

### Objectius

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;
- The basic literature regarding ecological economics;
- The essential differences between the way environmental problems and solutions are approached in environmental economics and ecological economics;
- New methods that have been proposed by, and are applied within, ecological economics.

### Competències

- Aplicar els coneixements d'economia ambiental i ecològica a l'anàlisi i a la interpretació de problemàtiques ambientals.
- Buscar informació en la literatura científica fent servir els canals apropiats i integrar aquesta informació per plantejar projectes de recerca en ciències ambientals.
- Comunicar oralment i per escrit en anglès
- Que els estudiants siguin capaços d'integrar coneixements i enfrontar-se a la complexitat de formular judicis a partir d'una informació que, tot i ser incompleta o limitada, inclogui reflexions sobre les responsabilitats socials i ètiques vinculades a l'aplicació dels seus coneixements i judicis
- Que els estudiants sàpiguin comunicar les seves conclusions, així com els coneixements i les raons últimes que les fonamenten, a públics especialitzats i no especialitzats d'una manera clara i sense ambigüitats
- Que els estudiants tinguin les habilitats d'aprenentatge que els permetin continuar estudiant, en gran manera, amb treball autònom a autodirigit
- Treballar en un context internacional i multidisciplinari

## Resultats d'aprenentatge

1. Buscar informació en la literatura científica fent servir els canals apropiats i integrar aquesta informació per plantejar projectes de recerca en ciències ambientals.
2. Comunicar oralment i per escrit en anglès
3. Conèixer el paper de les institucions en la governança ambiental.
4. Demostrar una visió integrada de la relació entre l'economia i els sistemes biofísics.
5. Diferenciar lacostament als problemes ambientals per part de l'economia ambiental i ecològica.
6. Que els estudiants siguin capaços d'integrar coneixements i enfrontar-se a la complexitat de formular judicis a partir d'una informació que, tot i ser incompleta o limitada, inclogui reflexions sobre les responsabilitats socials i ètiques vinculades a l'aplicació dels seus coneixements i judicis
7. Que els estudiants sàpiguin comunicar les seves conclusions, així com els coneixements i les raons últimes que les fonamenten, a públics especialitzats i no especialitzats d'una manera clara i sense ambigüitats
8. Que els estudiants tinguin les habilitats d'aprenentatge que els permetin continuar estudiant, en gran manera, amb treball autònom a autodirigit
9. Treballar en un context internacional i multidisciplinari

## Continguts

The FEE course involves a series of 3-hour lectures organised in four main sub-modules under the responsibility of specific teachers:

### Sub-Module 1: Foundations, Policy & Innovation

History and principles of ecological economics (14 Oct) (JvdB)  
Welfare, markets, externalities and public goods (16 Oct) (JvdB)  
Theories and methods of environmental valuation (21 Oct) (JvdB)  
Assessment of environmental policy instruments (23 Oct) (JvdB)  
Economics of climate policy (28 Oct) (JvdB)  
The ecological footprint and spatial sustainability (30 Oct) (JvdB)  
Behavioral economics and environmental policy (4 Nov) (JvdB)  
Economic experiments and the environment (6 Nov) (AA)

### Sub-Module 2: Institutional Aspects

Essay writing session (11 Nov) (EC)  
Institutional economics and environmental governance (13 Nov) (EC)  
Property and access theory (18 Nov) (EC)  
Institutional fit, interplay and scale (20 Nov) (EC)  
Governing Common Pool Resources: Fishbanks (25 Nov / 5 hours) (EGB)

### Sub-Module 3: Assessment of Ecosystem Services

Integrated assessment of ecosystem services (27 Nov) (EGB)  
 Commodification of ecosystem services: Issues and challenges (27 Nov - 2 pm to 5 pm) [1] (EGB)  
 Payments for ecosystem services and environmental offsets (4 Dec) (EC)  
 REDD+ (9 Dec) (EC & AA)

The environment-versus-growth debate (11 Dec) (JvdB & EC & AA)

[1] EGB will teach 6 hours on the 27th Nov and there will be no lecture on the 2nd of December.

## Metodologia

Lecturers will present a given topic and students will be expected to prepare for the class reading in advance, and at least, the compulsory readings suggested in the bibliography. Lectures will involve time for questions and answers and for discussion.

## Activitats formatives

Títol	Hores	ECTS	Resultats d'aprenentatge
Tipus: Dirigides			
Exercise in class	6	0,24	4, 9
Lectures	56	2,24	3, 5, 6
Tipus: Autònomes			
1 short and 2 longer essays, which involve reading the necessary literature to write the essays	56	2,24	1, 2, 4, 6, 7, 8
Group report from exercise in class	4	0,16	2, 3
Reading articles, books and studying for each of the given lectures and the final exam	100	4	1, 3, 5, 8

## Avaluació

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:

a) Presence at lectures: at least 75-80% of all lectures; absence should be justified.

b) A final exam, contributing to 50% of the final mark. The exam will take place on the 15th of January 2015, from 10 to 13:00 hours. 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 four contributing teachers will evaluate the exam together.

c) Three written essays:

c.1) One 1000-word essay:

"Use contemporary examples from the peer reviewed literature of collective management of natural resources to systematize the reasons behind management failure and success in relation to resource

sustainability and social equity", to be submitted by 11 December 2014 to [esteve.corbera@uab.cat](mailto:esteve.corbera@uab.cat), and contributing to 15% of the final mark;

c.2) One 1500-word essay:

Discuss critically the following statement: "REDD+ strategies and projects have potential to realise environmental justice at global, national and local scale", to be submitted by 13 January 2015 to [esteve.corbera@uab.cat](mailto:esteve.corbera@uab.cat), and contributing to 15% of the final mark;

c.3) One 500-word essay corresponding to the last lecture about the environment-versus-growth debate, and contributing to 7.5% of the final mark.

One day half way the course is dedicated to building essay-writing skills where you can start preparing your essay #1 above with EsteveCorbera's support.

You are strongly advised to check Annex I & II with Essay Writing Suggestions and Submission Guidelines, which can be found at the end of the Bibliography.

d) A 1000 words group assignment related to the Fishbanks exercise, and contributing to 12.5% of the final mark:

See Annex III at the end of the Bibliography for further details.

Each student will have to undertake all evaluation parts (exam, essays and exercise). A student who fails to pass as a result of a poor exam may be invited to re-take an oral examination before the final grades are submitted to UAB, but only if she/he has shown proof of progressive learning in the other evaluation exercises.

## Activitats d'avaluació

Títol	Pes	Hores	ECTS	Resultats d'aprenentatge
1 short and 2 longer essays	37.5%	0	0	1, 2, 4, 6, 7, 8
Exercise in class and group report	12.5%	0	0	9
Final exam	50%	3	0,12	2, 3, 4, 5, 6, 7, 8

## Bibliografia

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. Introduction: History and principles of Ecological Economics (14th Oct)

(\*\*) 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 (16th Oct)

(\*\*) 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 (21st Oct)

(\*\*) 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 (23rd Oct)

(\*\*) 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 (28th Oct)

(\*\*) 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](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 ecological footprint and spatial sustainability (30th Oct)

(\*\*) J.C.J.M. van den Bergh and F. Grazi (2014). Footprint Policy? Land Use as an Environmental Indicator. Journal of Industrial Ecology 18(1): 10-19.

with response by Wackernage in the journal and on the web, and replies by van den Bergh/Grazi.

Grazi, F.; van den Bergh, J. and P. Rietveld .2007. Spatial welfare economics versus ecological footprint: Modeling agglomeration, externalities and trade. Environmental and Resource Economics 38: 135-153.

### 7. Behavioral economics and environmental policy (4th Nov)

(\*\*) E. Gsottbauer and J.C.J.M. van den Bergh (2011). Environmental policy theory given bounded rationality and other-regarding preferences. Environmental and Resource Economics 49(2): 263-304.

### 8. Economic experiments (6th Nov)

(\*\*) Harrison, G. W. & List, J. A. (2004) Field experiments. Journal of Economic Literature): 1009-1055.

(\*\*) Handberg, Øyvind Nystad and Arild Angelsen. Experimental tests of tropical forest conservation measures. Manuscript, submitted to Journal of Behaviour and Economic Organization.

(\*\*) Ostrom, E. (2006) The value-added of laboratory experiments for the study of institutions and common-pool resources. *Journal of Economic Behavior & Organization*, 61 (2): 149-163.

Cardenas, J. C., Stranlund, J. & Willis, C. (2000) Local Environmental Control and Institutional Crowding-Out. *World Development*, 28 (10): 1719-1733.

Levitt, S. D. & List, J. A. (2007) What do laboratory experiments measuring social preferences reveal about the real world? *The journal of economic perspectives*: 153-174.

#### 9. Essay writing & Reading class (11th Nov)

This lecture will be dedicated to learn about essay/scientific article writing and to start planning the contents of the first 1000-words essay of the course.

#### 10. Institutional economics and environmental governance (13th Nov)

(\*\*) Aguilera-Klink, F. 1994. Some notes on the misuse of classic writings in economics on the subject of common property. *Ecological Economics*, 9(3): 221-228.

(\*\*) Hardin, G. 1968. The tragedy of the commons. *Science* 162: 1243-1248.

(\*\*) Muradian, R., Gómez-Baggethun, E. 2013. The Institutional Dimension of "Market-based Instruments" for Governing Ecosystem Services: Introduction to the Special Issue. *Society & Natural Resources* 26: 1113-1121.

Ostrom, E. 1990. *Governing the Commons: The Evolution of Collective Action*. Cambridge University Press, Cambridge.

Ostrom, E. 2003. How types of goods and property rights jointly affect collective action. *Journal of Theoretical Politics* 15(3): 239-270.

Ostrom, E. et al. (eds) 2002. *The Drama of the Commons*. Washington, National Research Council.

Vatn, A., 2005. *Institutions and the Environment*. Edward Elgar, Cheltenham, UK and Northampton, USA.

#### 11. Property and Access Theory (18th Nov)

(\*\*) Ribot, J., Peluso, N. 2003. A Theory of Access. *Rural Sociology*, 68(2): 153-181.

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

and *Change* 40: 1-22.

Feeny, D., Berkes, F., McCay, B.J. y J.M. Atcheson, 1990. The tragedy of the commons - 22 years later. *Human Ecology*. 18: 1-19.

Ostrom E, Schlager E, 1996. "The formation of property rights", in *Rights to Nature. Ecological, Economic, Cultural and Political Principles of Institutions for the Environment* Eds S Hanna, C Folke, K G Maler (Island Press, Washington, DC) pp 127-156.

Sikor T., Lund C., 2009. Access and property: a question of power and authority'. *Development*

Sikor, T. (ed) 2008. *Public and Private in Natural Resource Governance. A False Dichotomy?* London, Earthscan.

von Benda-Beckmann F, von Benda-Beckmann K, Wiber M, 2006. "The properties of property", in *Changing Properties of Property* Eds F von Benda-Beckmann, K von Benda-Beckmann, M Wiber (Berghahn, New York).

#### 12. Institutional fit, interplay and scale (20th Nov)

(\*\*) Eakin, H., Winkels, A., and Sendzimir, J., 2009. [Nested vulnerability: exploring cross-scale linkages and vulnerability teleconnections in Mexican and Vietnamese coffee systems](#). Environmental Science & Policy, 12(4): 398-412.

(\*\*) Reischl, G., 2012. [Designing institutions for governing planetary boundaries - Lessons from global forest governance](#). Ecological Economics, 81, 33-40.

Corbera, E., Brown, K., 2008. [Building Institutions to Trade Ecosystem Services: Marketing Forest Carbon in Mexico](#). World Development, 36(10): 1956-1979.

Basurto, X. and Coleman, E., 2010 [Institutional and ecological interplay for successful self-governance of community-based fisheries](#) Ecological Economics, 69, 5: 1094-1103

Galaz, V., et al. 2012. ['Planetary boundaries' - exploring the challenges for global environmental governance](#). Current Opinion in Environmental Sustainability, 4 (1): 80-87.

Gómez-Baggethun, E., Kelemen, E., Martín, B., Palomo, I., Montes, C., 2013. Scale misfit in ecosystem service governance as a source of environmental conflict. Society & Natural Resources 26: 1202-1216.

Mitchell, R.B., 2008. Evaluating the Performance of Environmental Institutions: What to Evaluate and How to Evaluate It? In: Young, O.R., King, L.A., Schroeder, H. (Eds.), Institutions and Environmental Change: Principal Findings, Applications, and Research Frontiers. The MIT Press, Cambridge.

Ostrom, E., 2005. Understanding Institutional Diversity. Princeton University Press, Princeton & Woodstock.

Wyborn, C. and Bixler, R.P., 2013. [Collaboration and nested environmental governance: Scale dependency, scale framing, and cross-scale interactions in collaborative conservation](#)., Journal of Environmental Management, 123: 58-67.

Young, O.R., 2002. The Institutional Dimensions of Environmental Change. Fit, Interplay and Scale. MIT Press, London.

Young, O.R., Agrawal, A., King, L.A., Sand, P.H., Underdal, A., Wasson, M., 1999. Institutional Dimensions of Global Environmental Change. Report No. 9. International Human Dimensions Programme on Global Environmental Change, Bonn.

### 13. Governanace of Common Pool Resources: Fishbanks (25th Nov, 10 am to 5 pm)

(\*\*) Ruiz-Pérez, M., Franco-Múgica, F., González-Novoa, J., Gómez-Baggethun, E., Alberruche-Rico, M.A. 2011. An institutional analysis of the sustainability of fisheries: Insights from FishBanks simulation game. Ocean and Costal Management 54: 585-592.

Ahn, T.K., Ostrom, E., Walker, J., 2010. A common-pool resource experiment with postgraduate students from 41 countries. Ecol. Econ. 69: 2624-2633.

Bailey, M., Rashid Sumailaa, U., Lindroos, M., 2010. Application of game theory to fisheries over three decades. Fish. Res. 102, 1e8.

Basurto, X., Coleman, E., 2010. Institutional and ecological interplay for successful self-governance of community-based fisheries. Ecol. Econ. 69: 1094-1103.

### 14. Integrated Assessment of Ecosystem Services (27th Nov, 10 am to 1 pm)

(\*\*) Gómez-Baggethun, E., de Groot, R., Lomas, P., Montes, C., 2010. The history of ecosystem services in economic theory and practice: from early notions to markets and payment schemes. Ecological Economics, 69: 1209-1218.

(\*\*) De Groot, R.S., Wilson, M., Boumans, R., 2002. A typology for the description, classification and valuation of ecosystem functions, goods and services. Ecological Economics, 41(3): 393-408.

Daily, G.C. 1997. Nature's Services: Societal Dependence on Natural Ecosystems. Island Press.

Gómez-Baggethun, E., de Groot, R. 2010. Natural capital and ecosystem services: The ecological foundation of human society. In: R. E. Hester and R. M. Harrison (eds.), *Ecosystem services: Issues in Environmental Science and Technology* 30, Royal Society of Chemistry, Cambridge, pp. 118-145.

Martín-López, B., Gómez-Baggethun, E., García-Llorente, M., Montes, C. 2013. Trade-offs across value-domains in ecosystem service assessment. *Ecological Indicators*, DOI: <http://dx.doi.org/10.1016/j.ecolind.2013.03.003>

#### 15. Commodification of ecosystem services: Issues and challenges (27th Nov, 2 pm to 5 pm)

(\*\*) Gómez-Baggethun, E., Ruiz-Pérez, M. 2011. Economic valuation and the commodification of ecosystem services. *Progress in Physical Geography*, 35: 617 - 632.

(\*\*) Kallis, G., Gómez-Baggethun, E., Zografos, K. 2013. To value or not to value. That is not the question. *Ecological Economics* 94: 97-105.

Luck, G.W., Chan, K.M.A., Eser, U., Gómez-Baggethun, E., Matzdorf, Norton, B., Potschin, M.B. 2012. Ethical Considerations in On-ground Applications of the Ecosystem Services Concept. *BioScience*, 62: 1020-1029.

Jax, K., Barton, D.N., Chan, K., de Groot, R., Doyle, U., Eser, U., Görg, C., Gómez-Baggethun, E., Haber, W., et al. 2013. Ecosystem services and ethics. *Ecological Economics* 93: 260-268.

Marx, K. The commodity. In: *Capital*, Chapter 1. Read specially sections 1 (The Two Factors of the Commodity) and 4 (The Fetishism of the Commodity and Its Secret).

Polanyi, K. 2001. The Self-regulating Market and the Fictitious Commodities: Labor, Land, and Money. Chapter 6 in: *The great transformation: The political and economic origins of our time*. Boston: Beacon Press.

#### 16. Payments for Ecosystem Services (4th Dec)

(\*\*) Kosoy, N., Corbera, E. 2010. Payments for ecosystem services as commodity fetishism. *Ecological Economics*, 69: 1228-1236.

(\*\*) Muradian, R., Corbera, E., Pascual, U., Kosoy, N., May, P. 2010. Reconciling theory and practice: An alternative conceptual framework for understanding payments for environmental services. *Ecological Economics*, 69: 1202-1208.

Brouwer R, Tesfaye A, Pauw P., 2012. Meta-analysis of institutional economic factors explaining the environmental performance of payments for watershed services. *Environmental Conservation*, 38, 380-392.

Corbera, E., Brown, K. 2010. Offsetting benefits? Analysing access to forest carbon. *Environment and Planning A*, 42(7): 1739-1761.

Corbera, E., Brown, K., Adger, W.N. 2007. The equity and legitimacy of markets for ecosystem services. *Development and Change* 38(4): 587-613.

Corbera, E., Soberanis, C., & Brown, K. (2009) Institutional dimensions of payments for ecosystem services. An analysis of Mexico's carbon forestry programme. *Ecological Economics* 68, 743-761.

Muñoz-Piña, C., Guevara, A., Torres, J. & Braña, J., 2008. Paying for the hydrological services of Mexico's forests: analysis, negotiations and results. *Ecological Economics* 65, 725-736.

Muradian et al., 2013. Payments for ecosystem services and the fatal attraction of win-win solutions. *Conservation Letters* doi: 10.1111/j.1755-263X.2012.00309.x

Pattanayak, S., Wunder, S. & Ferraro, P., 2010 Show me the money: do payments supply environmental services in developing countries? *Rev. Env. Econ. Pol.* 4, 254-274.

Vatn, A., 2010 An institutional analysis of payments for environmental services. *Ecological Economics* 69,1245-1256.



17. REDD+ and environmental offsets (9th Dec)

(\*\*) Corbera, E., 2012. Problematizing REDD+ as an experiment in payments for ecosystem services. *Current Opinion in Environmental Sustainability*, 4, 612-619.

(\*\*) Angelsen, A. (2014). The economics of REDD+. In: Kant, S. & Alavalapati, J. (eds.) *Handbook in forest economics*. Routledge.

Beymer-Farris BA, Bassett TJ., 2012. The REDD menace: resurgent protectionism in Tanzania's mangrove forests. *Global Environmental Change*, 22, 332-341.

BumpusA, Liverman D., 2008. Accumulation by decarbonization and the governance of carbon offsets. *Economic Geography*, 84, 127-155.

Liverman D., 2004. Who governs, at what scale and at what price? *Geography, environmental governance, and the commodification of nature*. *Annals of the Association of American Geographers* 94, 734-738.

Lockie, S., 2013. Market instruments, ecosystem services, and property rights: assumptions and conditions for sustained social and ecological benefits. *Land Use Policy*, 31, 90-98.

Lohmann L., 2005. Marketing and making carbon dumps: commodification, calculation and counterfactuals in climate change mitigation" *Science as Culture*, 14, 203-235.

Lovell H, Bulkeley H, Liverman D., 2009. Carbon offsetting: sustaining consumption?' *Environment and Planning A*, 41, 2357-2379.

McAfee, K., 2012. The contradictory logic of global ecosystem services markets. *Development and Change*, 43, 105-131.

Putz, F.E., Redford, K.H., 2009. Dangers of carbon-based conservation. *GlobalEnvironmental Change* 19, 400-401.

Robertson M M., 2000. No net loss: wetland restoration and the incomplete capitalization of nature. *Antipode*, 32, 463-493.

Robertson M M., 2004. The neoliberalization of ecosystem services: wetland mitigation banking.

18. The environment-versus-growth debate (11th Dec)

(\*\*) 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.

Jackson, T. 2009. Prosperity without Growth. The transition to a sustainable economy. Sustainable Development Commission, UK Government. <http://www.sd-commission.org.uk/publications.php?id=914>

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.

Annex I - Suggestions for writing an article/essay

Objectives of writing an article/essay

Learning to:

- Collect, select and interpret information;
- Formulate a problem statement, a hypothesis, a goal statement and research questions;
- Be systematic in planning the research and writing the report;
- Write in a logical and readable way, paying attention to structure (sections, paragraphs), grammar, logic, style and spelling;
- Develop a convincing argument;
- Draw clear conclusions that are consistent with the formulated problem, goal, hypothesis or questions;
- Handle data and apply (statistical and modelling) techniques of data analysis and description (optional);
- Be creative/original.

#### Structure of the article/essay

1. Start with a short summary/abstract (max. 150 words) of the paper.
2. Introductory section: provide an introduction to the paper, with an explicit motivation of the relevance of the topic/problem selected, and with clear formulations of the problem, goal, questions or hypotheses; embed the study in the relevant literature and make clear what is innovative about it; finish the introduction with an outline of the paper, i.e. a very short and systematic overview of the contents of each subsequent section; make sure that this outline logically follows from the previous part of the introduction, i.e. do not introduce new issues or concepts.
3. One section (optional): with a short survey of the relevant literature; this includes conclusions of other similar studies;
4. One or more sections: a description of the specific research orientation and approach in detail; make a relevant distinction between concepts, definitions, framework, theories, case study, data, methods/techniques, application/testing and results; make sure you have clear conclusions at the end of each section;
5. One section: use a final chapter for a short summary and conclusions of the whole paper;
6. List of references: an alphabetical list of references to the literature made in the paper should be put at the end of the paper.
7. (optional) Annexes with technical details. But if you can avoid these.

#### Additional advice

(1) Write always goal-oriented. Keep the reader informed about any intermediate objectives, to avoid that the reader is left wondering where the discussion is going to.

(2) Provide informative and motivational introductions to all sections. Conclude every section clearly but briefly. Provide adequate bridges (connecting text) between sections where necessary. Use informative but short titles - avoid cryptic titles.

(3) Arrange a balanced structure of the text, on every level. This means that paragraphs within sections should be balanced in length (one third of page at maximum). The length of sections should also be in balance. If one section turns out to be much longer than the rest and you see no way to shorten it, you may consider moving some of its material to footnotes (which usually shortens the text) or to an annex. But in general, a preferable strategy is to shorten the text as this tends to turn it into more attractive reading.

(4) It is essential to make a clear distinction, for yourself as well as for the reader, between statements of facts (e.g., by adding a reference), opinions of other authors (e.g., by adding a citation or a clear formulation like "X thinks that", "according to X", etc.), an interpretation of what others have said (by being explicit about it), and your own opinion/conclusion (by stating so explicitly). If you copy figures or tables from others mention clearly the source. If you include a citation to someone else, mention not only the reference (name and year) but also the page number (to allow the reader to check the original source).

(5) Do not hide uncertainties, lack of information to draw clear conclusions, differences of opinion, etc. Indicate what is sure and what is uncertain. Do not draw overly strong conclusions - be modest and formulate very carefully.

(6) Be consistent in your choice of style. For instance: use one style of references (see point 9 for detailed suggestions), separate paragraphs either by tabs (indents) or by empty lines (don't mix the two styles); in

publications like journals and books tabs are most commonly used; mention titles and numbers of figures always below and of tables always at the top, in Italics; include clear, succinct titles for tables and figures; indicate source and notes below the figure/table; use only horizontal lines in the tables (preferably 3, two to separate the title row, and one at the bottom of the table); introduce figures and tables well in the main text ("see Figure 3", "as shown in Figure 3"). Tables and figures are a complement and no substitute for discussion in the text, i.e. explain/discuss them. Use better footnotes instead of endnotes (nicer for the reader); don't put references in footnotes (see point 9); be very restrictive with footnotes (they aren't required); use a smaller letter type for footnotes than for the main text.

(7) There is much to say about style of writing; to some extent this is a matter of taste; nevertheless, some standards have evolved over time; the most famous, concise book on style in (American) English language is W. Strunk and E.B. White, *The Elements of Style*, last revised edition, MacMillan, New York. It can be read in an afternoon, and is very cheap.

(8) Be concise and to the point in your conclusions section; first summarize the problem studied and the approach followed. Then answer systematically the questions formulated in the introduction section. Try to avoid references as much as possible: your conclusions have to derive from your analysis in previous sections (so no new information is needed, and may in fact be confusing). Only when you want to compare your findings with those of others, references are in order. If possible, mention further research (but this is not required).

(9) Take care of correctly mentioning literature/references to books, journal articles, reports and websites; in the main text mention the last name of the author and the year of publication: "name (1999)" or "(name, 1999)". Add the page number if you refer to a citation, or if the information is very specific (relating to a particular chapter or section in the publication referred to). Mention the full reference in an alphabetical list at the end of the paper following a standard format (copy the format of a particular journal; but write journal names in full); references to websites can be done in the main text ("see <http://www.websitename>") or following similar rules as given for publications.

#### Annex II - Submission guidelines for FEE essays

Essays must be submitted via email to the relevant lecturer in a Word Document (not PDF) using Times New Roman 12 pt for the main text (10 pt for footnotes) and 1,5 line spacing. Titles should be highlighted in bold.

Mention the word count at the beginning of the document. If a paper exceeds the word limit, it runs a serious risk to get an insufficient grade.

References are excluded from the word count and they should be formatted using the style of the journal *Ecological Economics* (<http://www.elsevier.com/journals/ecological-economics/0921-8009/guide-for-authors#68000>).

If an essay is submitted after the date of the deadline, the student will face a 5% mark penalty for every day of submission delay.

#### Annex III - Fishbanks Group Assignment Exercise

The governance of common pool resources involves consideration of social, ecological and economic dimensions. Explain one key institution you would prioritize to achieve targets of i) ecological sustainability, ii) social equity, and iii) economic efficiency in the context of the governance of fisheries (one institution per policy target).

The assignment has to be collectively undertaken by each of the teams that participated in the Fishbanks simulation game and the total amount of text should not exceed 1000 words (expand boxes as necessary).

Assignments (one per group) must be submitted to [erik.gomez@uab.es](mailto:erik.gomez@uab.es) no later than December 19<sup>th</sup> 2014.

Fishbanks group number:

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Names of group members:

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i) Institution for ecological sustainability:

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ii) Institution for social equity:

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ii) Institution for economic efficiency:

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