

Conceptes Interdisciplinaris sobre Sostenibilitat Ambiental, Econòmica i Social

2015/2016

Codi: 43068

Crèdits: 15

Titulació	Tipus	Curs	Semestre
4313784 Estudis Interdisciplinaris en Sostenibilitat Ambiental, Econòmica i Social	OB	0	A

Professor de contacte

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Equip docent

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François Carlos Leon Diaz Maurin

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Utilització de llengües

Llengua vehicular majoritària: anglès (eng)

Equip docent extern a la UAB

Cheddi KIRAVU

Lapologang MAGOLE

Zivayi CHIGUVARE

Prerequisits

No es demanen prerequisits

Objectius

Este módulo tiene por objetivo garantizar la interdisciplinariedad sobre sostenibilidad ambiental, económica y social. Cualquier problema de esta índole puede ser abordado considerando distintos aspectos que garanticen una solución más sostenible para las generaciones futuras.

Es un módulo dividido entre el primero y el segundo semestre, aunque la mayor carga docente esta situada en el primer semestre.

En el primer semestre: se revisan los conceptos esenciales de los cuatro ámbitos que consta el máster y participan profesores de estas 4 especialidades. Por lo que es un módulo donde participan un buen numero de profesores. En él se incluye una salida de campo de tres dias a Alinyà

Para el curso 15/16 este módulo cuenta con a la participación de expertos surafricanos que daran un curso sobre: Integrated, participatory assessment procedures to promote energy access and environmental sustainability: The case of Southern Africa

Competències

- Analitzar el funcionament del planeta a escala global per comprendre i interpretar els canvis ambientals a escala global i local.
- Analitzar, sintetitzar, organitzar i planificar projectes relacionats amb la millora ambiental de productes, processos i serveis.
- Aplicar els coneixements d'economia ambiental i ecològica a l'anàlisi i a la interpretació de problemàtiques ambientals.
- Aplicar els coneixements d'enginyeria ambiental a la depuració i al tractaments de la contaminació de diferents ambients.
- Aplicar els coneixements i les metodologies apresos sobre sostenibilitat ambiental, econòmica i social a la planificació i el control de polítiques i projectes de gestió ambiental.
- 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
- Tenir coneixements que aportin la base o l'oportunitat de ser originals en el desenvolupament o l'aplicació d'idees, sovint en un context de recerca

Resultats d'aprenentatge

1. Aplicar una anàlisi multicriteri a un sistema.
2. Buscar informació en la literatura científica fent servir els canals apropiats i integrar aquesta informació per plantejar projectes de recerca en ciències ambientals.
3. Comparar i seleccionar amb objectivitat les diferents alternatives tècniques d'un procés industrial amb paràmetres de sostenibilitat ambiental.
4. Comunicar oralment i per escrit en anglès
5. Conèixer els principals sistemes de depuració d'aigües i gasos.
6. Conèixer els processos de prevenció, reutilització, reciclatge i valorització de residus.
7. Conèixer les alternatives de tractament de residus.
8. Conèixer les dues eines fonamentals per al problema d'avaluació: l'anàlisi cost-benefici i l'anàlisi multicriteri.
9. Conèixer les eines de l'economia que puguin tenir una aplicació en problemes de política ambiental
10. Distingir els subsistemes del planeta i conèixer-ne les interaccions.
11. Tenir coneixements que aportin la base o l'oportunitat de ser originals en el desenvolupament o l'aplicació d'idees, sovint en un context de recerca

Continguts

FIRST SEMESTRE

1. INTEGRATED, PARTICIPATORY ASSESSMENT PROCEDURES TO PROMOTE ENERGY ACCESS AND ENVIRONMENTAL SUSTAINABILITY: THE CASE OF SOUTHERN AFRICA. SPECIAL THEME ORGANIZED WITH THE SUPPORT OF FONS DE SOLIDARITAT DE LA UNIVERSITAT AUTÒNOMA DE BARCELONA

Dates: Monday 28 September - Friday 02 October 2015.

Professors: Zivayi CHIGUVARE**, Namibia Energy Institute, Polytechnic of Namibia, Windhoek, Namibia; François Diaz Maurin, Post-doctoral Researcher, ICTA, UAB; Mario Giampietro, ICREA Research Professor, ICTA, UAB; Cheddi KIRAVU**, Senior Lecturer (Electrical Engineering) at the Faculty of Engineering & Technology, and Director of the Clean Energy Research Centre (CERC), University of Botswana, Gaborone,

Botswana; Zora KOVACIC, Post-doctoral Researcher, ICTA, UAB; Lapologang MAGOLE**, Senior Research Scholar (Natural Resources Governance), Okavango Research Institute, University of Botswana, Maun, Botswana

Programme:

1. Monday, 28 September 2015, 15:00-18:00

Mario Giampietro: Introduction to the special theme: Integrated, participatory assessment procedures to promote energy access and environmental sustainability: The case of Southern Africa

Lapologang MAGOLE: The importance of participatory processes, stakeholder mobilization and capacity building for natural resource management and governance: The case of Integrated Water Resources Management (IWRM) in Botswana.

Questions and discussion

2. Tuesday, 29 September 2015, 15:00-18:00

Zivayi Chiguvare: The energy sector of Namibia, reality and expectations. An analysis of geo-political, economic, environmental, and social issues.

François Diaz-Maurin: Integrated characterization of energy systems: How to integrate an analysis of the feasibility, viability and desirability across different scales.

Questions & discussion

3 Wednesday, 30 September 2015, 15:00-18:00

Mini-symposium and round table **The challenges of promoting sustainable energy access in Southern Africa: The view of local experts** (*Attendance required, event open to public*)

Lapologang Magole, Senior Research Scholar (natural resources governance), Okavango Research Institute, University of Botswana, Botswana: "*Using energy to do what? The challenges of rural development in Botswana*"

Cheddi Kiravu, Director of the Clean Energy Research Centre (CERC), University of Botswana: "*The energy sector of Botswana, present state and future options*"

Zivayi Chiguvare, Director of Namibia Energy Institute, Polytechnic of Namibia: "*Socio-economic and geo-political factors shaping the energy sector of Namibia*"

Round Table

4. Thursday, 01 October 2015, 15:00-18:00

Cheddi Kiravu: Socio-economic and environmental impacts of diversifying the sources of electricity generation to include renewables and promote energy efficiency in Botswana: A systems view.

Mario Giampietro: The nexus between land-use, energy, food, and water.

Questions & discussion

5. Friday, 02 October 2015, 15:00-18:00

Zora Kovacic: The metabolism of informal urban settlements. A close up of Enkanini, South Africa.

Mario Giampietro: Quantitative storytelling: How to integrate different analyses (and different stakes) into a robust and useful input for natural resource management and governance. Multi-criteria analysis.

Questions and discussion

2. TRANSPORT AND THE ENVIRONMENT (5/6/7 OCTOBER 15:00-18:00)

Prof. Carme Miralles-Guasch & Oriol Marquet

Program:

1. **Describing the problem:** Transport modes, energy consumption and climate change

2. **Transport and mobility**

Mobile behaviors: times, modes and purposes of everyday mobility

Mobility and the built environment

Mobility and the social structure

3. **Future perspectives, research possibilities and policy implications**

Sustainability beyond environment

Assessing the true costs of mobility

Integrated solutions

Future research

VISIT TO THE ALINYÀ CAMPUS (8/9/10 october)

Departure by bus from the UAB: 08.00

The bus will pick us up at the bus stop by the "eje central" close to the SAF. See enclosed map. Please be on time.

Arrival at Alinyà (Llobera) at 10.30

First day

Activity 1 - The Sustainable Use of the Local Environment (11.00 - 15.00)

Staff: Rafael Mariné (FCLP)

Livestock in the Alinyà valley and the management of pastures

Activity 2 - Talk-debate invigorating the economy of Alinyà Valley. (16.00 - 18.00)

Main speakers: Martí Boada (ICTA), Sílvia Garrigós (FCLP)

Visit to the "Rectoria" and the function of the "Agrobotiga" (organic food store) and the making of a more dynamic economy in Alinyà Valley.

Second Day

Activity 3 - Project for CO₂ fixation and the experimental project on the cultivation of quinoa and potato

Staff: Xavier Escuté (FCLP):

Site visit of the EU project LIFE operation CO₂ : Apple plantation combined with other species to increase fixation in the framework of the LIFE project.

Visit to one of the experimental plantations for the cultivation of quinoa (*Amaranthus*) and potato supervised by Peruvian agronomists collaborating with ICTA and the FCLP.

Activity 4 - Talk-debate on the sustainable use of the local environment and practical interpretation of the landscape from a socioecological perspective (16.00- 20.00)

ICTA staff

Third day

Activity 5- Protected species (10 -14)

Staff: Aleix Millet (FCLP)

Excursion on foot from Alinyà to the "Ermita de Sant Ponç".Departure 10.00, arrival 10.30

Project on the reintroduction of the black vulture

The work done at the supplementary feeding site

4. INTEGRATIVE EVALUATION APPROACHES & SOCIAL MULTI-CRITERIA EVALUATION (13/14/15/16 october 15:00-18:00 h)

Prof. Neus Martí

Evaluation becomes a crucial exercise when public informed-based decision making processes are promoted. The nature of problems related to environmental sustainability requires an appropriated evaluation approach consistent with their characteristics. *Social multi-criteria evaluation (SMCE)* is proposed as a tool to integrate *different scientific languages* in a public choice framework, where the whole "*civil society*" and ethical concerns on *future generations* have to be considered along with *policy-makers* and *market conditions*. The main topics tackled in this course are:

1. EVALUATION FOR AN INFORMED-BASED DECISION-MAKING

Dealing with a Complex World: Multiple Dimensions, Values and Scales

The evaluation purpose

Public informed-based decision-making processes

Appropriated evaluation approaches

Examples of appropriated evaluation approaches

2. SOCIAL-MULTI-CRITERIA EVALUATION APPROACH

What is Multi-Criteria Evaluation?

Social Multi-Criteria Evaluation and Sustainability Issues

Technical and social incommensurability

3. BASIC OPERATIONAL CONCEPTS

Preference Modelling in SMCE

Measurement scales

Uncertainty in the criterion scores

Compensability and the Meaning of Weights

The Total Comparability Axiom: Multi-Attribute Value Functions

The Partial Comparability Axiom: Outranking Methods

The Issue of Consistency: Lessons Learned from Social Choice Literature

Examples of software applications

4. DESIGNING SMCE PROCESSES

The evaluability issue

Structuring a SMCE process

The quality of the SMCE process: outputs & process

Examples of real-world SMCE

SEGON SEMESTRE

Antònia Casellas Sessions: January 3, 10, 17, and 24; and March 1 and 8, 2016.

Description:

In these 6 sessions students engage in the techniques of academic writing. We will specifically work on academic practice of summary-critique, literature review-synthesis and design research. Topics covered include discussion of Critical/Academic Writing, Papers Structure, Abstracts, Introductions/Conclusions, Evidence, Citation Style, and Plagiarism, Academic Sources, and Library Resources. We will also address strategies for presenting information

Metodologia

Clases magistrales y de resolución de problemas y casos de estudio.

Aprendizaje basado en casos reales.

Presentación y exposición oral de trabajos de investigación desarrollados.

Participación en actividades complementarias.

Salidas de trabajo de campo

Activitats formatives

Títol	Hores	ECTS	Resultats d'aprenentatge
Tipus: Dirigides			
Actividades complementarias	26	1,04	11
Clases	84	3,36	3, 4, 9, 11
Salidas de campo	80	3,2	3, 4, 6, 10, 11
Trabajo de curso	65	2,6	2, 4, 9, 11
Tipus: Supervisades			
Lectura de artículos	40	1,6	2, 11
Lectura de material docente	45	1,8	

Avaluació

Cada parte del módulo tendrá su propio método de evaluación

Activitats d'avaluació

Títol	Pes	Hores	ECTS	Resultats d'aprenentatge
Asistencia i participació activa en classe ¹⁰	10	5	0,2	1, 4, 8, 9, 10, 11
Assistència a les activitats de treball de camp i complementàries	10%	20	0,8	2, 3, 4, 5, 7, 8, 9, 11
Defensa de treballs del curs	20	10	0,4	4, 11

Bibliografia

2. TRANSPORT AND THE ENVIRONMENT

Banister, D., 2008. The sustainable mobility paradigm. *Transport Policy*, 15(2), pp.73-80. Available at: <http://linkinghub.elsevier.com/retrieve/pii/S0967070X07000820>

Schiller, P.L., Bruun, E.C. & Kenworthy, J.R., 2010. *An Introduction to Sustainable Transportation. Policy, planning and implementation*, Earthscan.

Owen, D., 2009. *Green Metropolis. Why Living Closer, and Driving Less Are the Keys to Sustainability*, London: Penguin Books.

Rodrigue, J.P., Comtois, C. & Brian, S., 2006. *The Geography of transport systems*, London and New York: Routledge.

Næss, P., 2006. *Urban structure matters. Residential location, car dependance and travel behaviour*, New York: Taylor & Francis.

Newman, P., Beatley, T. & Boyer, H., 2009. *Resilient cities. Responding to peak oil and climate change*, Washington DC: Island Press.

4. INTEGRATIVE EVALUATION APPROACHES & SOCIAL MULTI-CRITERIA EVALUATION

Textbook for further readings: Munda G. - *Social multi-criteria evaluation for a sustainable economy*, Operation Research and Decision Theory Series, Springer, Heidelberg, New York, 2008