

Canvi Global

2014/2015

Code: 42404
ECTS Credits: 9

Degree	Type	Year	Semester
4313784 Estudis Interdisciplinaris en Sostenibilitat Ambiental, Econòmica i Social	OT	0	1

Contact

Name: Roser Maneja Zaragoza
Email: Roser.Maneja@uab.cat

Use of languages

Principal working language: anglès (eng)
Some groups entirely in English: No
Some groups entirely in Catalan: Yes
Some groups entirely in Spanish: No

Teachers

Jordina Belmonte Soler
Victor Sarto Monteys
Peter Graham Mortyn
Esteve Corbera Elizalde
Sonia Sánchez Mateo

External teachers

Patrizia Ziveri

Prerequisites

Students should preferably hold an undergraduate degree with relevance to environmental sciences, geography or ecology, although students with a background in social and political sciences are also welcome and should be able to follow the course provided they are acquainted with basic principles of Earth and physical sciences.

A reasonable level of English speaking and writing skills are necessary to follow the course.

Objectives and Contextualisation

The understanding of the biological, physical, chemical and social processes related to Global Change, and their interaction, are some of the main current challenges, not only because of its complexity, but also due to the necessity of finding solutions to the negative impacts caused by such changes.

The course covers many of the diverse types of impacts related to Global Change, mainly focussed on climate change, as well as its effects on society, and the social and political responses to mitigate the negative consequences of this process.

The main objectives of the course are summarized bellow:

- to distinguish global changes and impacts from other and sometimes very influential forces (e.g. climate).
- to focus heavily on issues and themes tied to the ocean's role in Global Change
- the linkage between biodiversity and Global Change
- the current policies and technologies in relation with climate change
- to explore local-scale manifestations/effects of Global Change impacts in a Mediterranean landscape

Skills

- Analitzar el funcionament del planeta a escala global per comprendre i interpretar els canvis ambientals a escala global i local.
- Buscar informació en la literatura científica fent servir els canals apropiats i integrar aquesta informació per plantejar projectes de recerca en ciències ambientals.
- Communicate and justify conclusions clearly and unambiguously to both specialised and non-specialised audiences.
- Comunicar oralment i per escrit en anglès
- Continue the learning process, to a large extent autonomously
- Que els estudiants sàpiguen aplicar els coneixements adquirits i la seva capacitat de resolució de problemes en entorns nous o poc coneguts dins de contextos més amplis (o multidisciplinaris) relacionats amb la seva àrea d'estudi.
- Work in an international, multidisciplinary context.

Learning outcomes

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. Communicate and justify conclusions clearly and unambiguously to both specialised and non-specialised audiences.
3. Comunicar oralment i per escrit en anglès
4. Continue the learning process, to a large extent autonomously
5. Conèixer les maneres com es manifesta el canvi global sobre els diferents ecosistemes.
6. Que els estudiants sàpiguen aplicar els coneixements adquirits i la seva capacitat de resolució de problemes en entorns nous o poc coneguts dins de contextos més amplis (o multidisciplinaris) relacionats amb la seva àrea d'estudi.
7. Work in an international, multidisciplinary context.

Content

The Ocean's Role in Global Change

- Introduction to Global Change and Climate Change
- Archives and Proxies as recording systems and tracing tools
- El Niño/Southern Oscillation (ENSO) as a globally relevant case study concept
- Hurricanes and Atlantic warming of recent decades
- Global Biogeochemical Cycles (GBC), and links to changes
- Ocean Acidification (OA)

Biodiversity and Global Change

- Applied Entomology vs. Biodiversity/Conservation. Climatic change and entomological case studies.
- Global change processes and impacts on terrestrial systems: vegetation, pollen and spores

Climate Change: Policy, Technology and Land-use

- Evolution and architecture of international climate policy
- Vulnerability and adaptation: concepts, policy and research
- Carbon markets
- Renewables and bioenergy options
- Geo-engineering
- Land-use based mitigation: REDD+

Fieldwork: Recent Global Change effects on Mediterranean landscapes (mountain area)

Methodology

Teaching and discussions will occur during lectures, guided by particular readings assigned in advance by individual instructors.

The course also includes an excursion to explore local-scale manifestations of Global Change impacts.

Activities

Title	Hours	ECTS	Learning outcomes
Type: Directed			
Fieldwork	6	0.24	
Lectures	48	1.92	
Type: Supervised			
Final Exam	3	0.12	
Type: Autonomous			
Reading articles, books and studying for each of the given lectures and the final exam	148	5.92	
Two short essays	20	0.8	

Evaluation

Students will be assessed on the basis of:

- A final exam that will last 2.5 hours and cover most aspects of the course. Students will have limited space to answer each of these questions and will have to prove that they have understood and master key concepts and ideas introduced during the course.

- Two written 1500-words essays corresponding to two topics addressed during the course. The teachers will assess the essay following their own marking criteria, taking chiefly into account ability to identify and synthesize relevant literature for a given topic and grasp the correspondent ideas and arguments.
- Fieldwork in order to prove the local effects of Global Change in a Mediterranean landscape
- Their assistance and participation in class.

The final mark will be the weighted average of the following assessments:

- Final exam: 50%
- Two written essays: 30% (15% each)
- Fieldwork: 20%

Evaluation activities

Title	Weighting	Hours	ECTS	Learning outcomes
Fieldwork	20%	0	0	1, 5, 6, 4
Final Exam	50%	0	0	1, 3, 6, 2
Two written essays	30%	0	0	1, 3, 5, 6, 2, 4, 7

Bibliography

The Ocean's Role in Global Change

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Biodiversity and Global Change

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Climate Change: Policy, Technology and Land-use

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Fieldwork

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