

## Global Change

Code: 42404  
ECTS Credits: 9

**2025/2026**

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

## Contact

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## Teachers

Patrizia Ziveri

Johannes Langemeyer

Miquel Ninyerola Casals

## Teaching groups languages

You can view this information at the [end](#) of this document.

## Prerequisites

Students are preferably expected to hold an undergraduate degree in fields related to environmental sciences, biology, geography, Earth and marine sciences, or ecology. However, students with a background in social or political sciences are also welcome, provided they have a basic understanding of Earth and physical science principles.

A reasonable level of English proficiency, both spoken and written, is recommended to successfully follow the course content and participate in discussions.

## Objectives and Contextualisation

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Understanding the biological, physical, and social processes related to Global Change, and their complex interactions, represents one of today's most pressing scientific and societal challenges. This complexity is compounded by the urgent need to develop effective solutions to mitigate the negative impacts of these changes.

This course examines the diverse impacts of Global Change across various spatial and temporal scales, with a primary focus on both terrestrial and marine ecosystems, as well as the effects on human societies and the corresponding social responses.

## Course Objectives

By the end of the course, students will be able to:

- Identify different types of impacts associated with Global Change.
- Explore the wide range of spatial and temporal scales at which Global Change occurs.
- Consider additional driving forces that interact with Global Change processes.
- Analyze manifestations of Global Change in both terrestrial and marine systems, including biodiversity loss, disruptions to the global carbon cycle, ecosystem degradation, and land-use changes.
- Evaluate various approaches to addressing Global Change through case studies of protected areas such as biosphere reserves, marine protected areas, marine restoration projects, and rural landscapes.

## Competences

- Analyze how the Earth functions on a global scale to understand and interpret environmental changes on the global and local scales.
- Communicate and justify conclusions clearly and unambiguously to both specialized and non-specialized audiences.
- Communicate orally and in writing in English.
- Continue the learning process, largely autonomously.
- Seek out information in scientific literature using appropriate channels and use this information to formulate and contextualize research in environmental sciences.
- Solve problems in new or little-known situations within broader (or multidisciplinary) contexts related to the field of study.
- Work in an international, multidisciplinary context.

## Learning Outcomes

1. Communicate and justify conclusions clearly and unambiguously to both specialized and non-specialized audiences.
2. Communicate orally and in writing in English.
3. Continue the learning process, largely autonomously.
4. Know the ways in which global change shows itself in different ecosystems.
5. Seek out information in scientific literature using appropriate channels and use this information to formulate and contextualize research in environmental sciences.
6. Solve problems in new or little-known situations within broader (or multidisciplinary) contexts related to the field of study.
7. Work in an international, multidisciplinary context.

## Competences

- Analyse how the Earth functions on a global scale in order to understand and interpret environmental changes on the global and local scales.
- 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.
- Seek out information in the scientific literature using appropriate channels, and use this information to formulate and contextualise research in environmental sciences.
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7. Work in an international, multidisciplinary context.

## Content

### Content

The course is organized as follows:

#### Sub-Module 1: Terrestrial Global Change

1. Introduction to the interdisciplinary approach on Global Change.
2. Responding Locally to Global and Globalizing Changes: land use/cover change.
3. Forest Management as a key factor of global change. Sustainable forest management and its revalorization.
4. Forest health.
5. The Conceptual Framework of (Urban) Ecosystem Services and Green Infrastructure.
6. Assessing (Urban) Ecosystem Services: Methodological Approaches.
7. Oral presentations.

#### Sub-Module 2: Marine Global Change

1. Introduction to ocean, climate, and global change. The perturbation of the carbon cycle and the consequences on the marine ecosystems and biogeochemistry
2. Cumulative pressures on the marine system focusing on marine pollution, marine litter and micro-plastics
3. Considering different temporal scales of global changes from marine historical ecology and paleo-reconstructions. Discussing the new trend in blue economy focusing on blue carbon. Marine Protected Areas, ocean conservation and restoration.
4. Oral presentations

#### Sub-Module 3: Field trip

- New trends in Mediterranean landscapes conservation (Montseny Natural Park and Biosphere Reserve).

## Activities and Methodology

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Lectures	42	1.68	5, 2, 4, 7
Theory lessons in fieldwork	6	0.24	4, 3, 7

Type: Supervised

Fieldwork	6	0.24	4, 6
Tutorship	34	1.36	5, 6, 1
Type: Autonomous			
Oral presentation training	40	1.6	5, 4, 6, 3, 7
Reading articles, books and studying for each of the given lectures and the final exam	91	3.64	5, 4, 6, 1, 3

## Metodologia

Les classes magistrals combinaran l'ensenyament dirigit pel professor i debats guiats, amb el suport de lectures assignades que s'espera que els estudiants completin per avançat.

El curs també inclou activitats de treball de camp dissenyades per investigar manifestacions a escala local dels impactes del Canvi Global, proporcionant als estudiants coneixements pràctics i reals sobre el contingut del curs. També es realitzarà una anàlisi espacial integrada per avaluar la biodiversitat a nivell de paisatge i les pressions a què s'enfronta sota el canvi global.

Anotació: D'acord amb el calendari establert pel centre acadèmic o el programa de grau, es destinaran 15

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.

## Assessment

### Continous Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Class assignments	20%	0	0	4, 3, 7
Final Exam	50%	3	0.12	2, 6, 1
Two oral presentations	30%	3	0.12	5, 4, 6, 1, 3, 7

### Requirements for Assessment

Assessment of learning is based on the results of practical assignments completed independently. At least 80% of these assignments must be submitted within the deadlines established by the instructor. Students who have not submitted the required assignments by the specified deadlines will not be allowed to take the exam, and their final grade will be recorded as "Not Assessable."

Attendance will be monitored for both theoretical and practical classes. To be eligible for assessment, students must attend at least 80% of the scheduled sessions. Otherwise, the final grade will be recorded as "Not Assessable." Additionally, students who pass the course and have met the minimum attendance requirement will receive a 5% bonus on their final grade.

## Assessment activities

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

Type	Grade percentage (%)	Comments
Oral presentations	30	Two oral presentations (15% each one) covering Terrestrial and Marine Global Change
Class assignments	20	One class assignment covering Terrestrial Global Change
Final test	50	3-hour test covering most aspects of the course but Forest Health. In this case a take-home test will be provided.

If a student fails to achieve at least 40% in any of the individual assessment components -namely oral presentations (12%), class assignments (8%), or the final test (20%)- they will be required to retake the specific component(s) to be eligible to pass the subject. In such cases, the student will be contacted to arrange a new submission date or test session and the maximum grade for any resubmitted work is 5. Additionally, to pass the subject overall, the student must obtain a minimum of 50% in the final grade.

### IMPORTANT:

- Final Exam Format: In the final exam, students will be provided with limited space to answer each question. Responses must demonstrate a clear understanding and mastery of the key concepts and ideas introduced throughout the course.
- Field Trip: A field trip to the Montseny Natural Park and Biosphere Reserve will be organized to explore the local impacts of Global Change in a Mediterranean landscape. Students are required to wear appropriate clothing and footwear suitable for outdoor activities.
- Class Participation: Attendance and active participation in class sessions will be considered when evaluating students' overall performance.

## IRREGULARITIES BY THE STUDENT, COPYING AND PLAGIARISM

Assessment activities evaluated under this procedure are non-recoverable. If passing any of these activities is required to pass the subject, failure due to academic misconduct will result in automatic failure of the subject, with no opportunity for recovery within the same academic year.

The following are considered serious irregularities, among others:

- Copying, in whole or in part, any practice, report, or other assessment activity.
- Allowing others to copy your assessment work.
- Submitting group work that was not fully completed by all listed group members.
- Presenting work prepared by a third party on your own, including translations, adaptations, or any content not original and exclusive to the student.
- Possessing or using communication devices (e.g., mobile phones, smartwatches) during individual theoretical or practical assessments (e.g., exams).

In accordance with current academic regulations, and without prejudice to any additional disciplinary actions, any irregularity that may affect the integrity of the evaluation process will result in a grade of zero (0) for the affected activity.

#### ASSESSMENT POLICY FOR REPEATING AND CURRENT STUDENTS

If a student from a previous edition of the Master's program is repeating the course, their previous grades for the course's practical components will not be retained.

If a current student does not pass the course, he/she will be required to retake the failed components. In such cases, the final grade for those components will be capped at 5.

#### ACCESS TO ONLY CAMPUS COMPUTERS

If you are unable or prefer not to install the GIS software on your personal computer (for example, if you use Mac, Linux, or do not have a suitable device), you can access the software remotely through UAB's online campus computers at:

[https://sidciencies.uab.cat/sidcib/#acces\\_remot\\_aules](https://sidciencies.uab.cat/sidcib/#acces_remot_aules)

Choose: PC1D x Windows or PC4 x Lynux

#### USE OF ARTIFICIAL INTELLIGENCE

The use of Artificial Intelligence (AI) technologies is permitted in this course as part of completing assignments, provided the result reflects a significant personal contribution from the student in terms of analysis and critical reflection. Students must: (i) identify which parts have been generated using AI; (ii) specify the tools used; and (iii) include a critical reflection on how these tools have influenced the process and the outcome of the assignment. Failure to be transparent about the use of AI in assessable activities will be considered academic misconduct and will result in a grade of zero for the affected work, with no opportunity for recovery, or even more severe penalties in cases of serious breaches.

## Bibliography

### Bibliography

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#### Marine Global Change

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## Software

Specific GIS software might be used to complete the course: ArcGIS Pro, MiraMon or QGIS. All of them are freely available for SAES students.

## Groups and Languages

Please note that this information is provisional until 30 November 2025. You can check it through this [link](#). To consult the language you will need to enter the CODE of the subject.

Name	Group	Language	Semester	Turn
(TEm) Theory (master)	1	English	first semester	morning-mixed