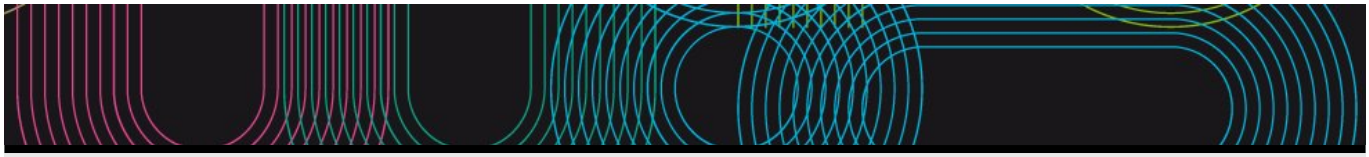
Universidade Vigo

Subject Guide 2023 / 2024



IDENTIFYING DATA				
Global change				
Subject	Global change			
Code	V02M179V01218			
Study programme	Máster Universitario en Biodiversidad Terrestre: Caracterización, conservación y gestión			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	3	Optional	1st	2nd
Teaching language	Spanish English			
Department				
Coordinator	Iglesias Briones, Maria Jesús			
Lecturers	Iglesias Briones, Maria Jesús Muñoz Sobrino, Castor Rodeiro Iglesias, Javier			
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General description	Since the Industrial Revolution and with greater intensity since the mid-twentieth century, our planet is experiencing a set of global environmental changes that derive from the exponential increase of the human population and, consequently, the rate of resource utilization. Human activities involve profound transformations in the use of the land, global biogeochemical cycles, the abundance and distribution of species, and the structure and functioning of ecosystems. In this course, students are expected to know the scales and components involved in global change, understand its main effects on terrestrial ecosystems, and become familiar with the main international programs that study this discipline.			

Training and Learning Results
Code

Expected results from this subject	Training and Learning Results
□ Ability to identify the main components, natural and anthropogenic, of global change □ Ability to identify the effects and adaptations to climate changes □ Ability to identify, evaluate and foresee the effects of environmental changes on biodiversity at all levels (species, habitats, ecosystems, landscape and social and economic aspects) □ Ability to understand, apply and develop methodologies to evaluate and mitigate environmental changes □ Capacity to correctly apply the international and national Directives and regulations (IPCC, Climate Action, Spanish Environmental Evaluation 21/2013, etc.) □ Ability to identify the effects of climatic variables on the soil carbon balance □ Ability to evaluate the contribution of soils to carbon sequestration □ Ability to develop strategies to increase the carbon retention potential by soils	

Contents	
Topic	
Introduction to Global Change	Scales and components
General trends in Global Change	IPCC scenarios and International Protocols

Evidences of Global Change in Terrestrial Ecosystems	1. Responsible factors for the observed biodiversity changes; extinctions and adaptations 2. Climate change effects across different biomes 3. Changes in atmospheric composition; biogeochemical changes; sources and sinks
Long-term perspectives	Global Change in the past
Practical activities	Analysis and interpretation of climate data and proxies Sustainable scalable methods of mitigation and adaptation

Planning

	Class hours	Hours outside the classroom	Total hours
Lecturing	14	28	42
Case studies	5	4	9
Seminars	1	0	1
Essay	0	20	20
Presentation	3	0	3

*The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.

Methodologies

	Description
Lecturing	Lectures on the different topics
Case studies	The cases can refer to any of the components of the global change and require the critical analysis of recent literature and interpretation of data and proxies
Seminars	Answsering questions and solving problems

Personalized assistance

Methodologies	**Description**
Lecturing	Answering questions and solving any problems that might arise
Tests	**Description**
Essay	Solving any potential issues

Assessment

	Description	Qualification	Training and Learning Results
Lecturing	Attendance and active participation	30	
Essay	Document describing the main idea, the phases of the project, the parameter/s to be mitigated and their measurement, the expected economic results and its scalability	30	
Presentation	Public defense and debating skills	40	

Other comments on the Evaluation

Sources of information

Basic Bibliography

Canadell, Josep G., Pataki, Diane E., Pitelka, Louis F. (Eds.), **Terrestrial Ecosystems in a Changing World**, Springer, 2007

Complementary Bibliography

IPCC, **Global Warming of 1.5 ºC**, 2018

IPCC (2019), **Climate Change and Land: an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems**,

Recommendations