Universitat Autònoma de Barcelona

2017/2018

Biosphere Sciences

Code: 100769
ECTS Credits: 6

Degree	Type	Year	Semester
2500250 Biology	OB	3	2

Contact

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Use of languages

Principal working language: catalan (cat)
Some groups entirely in English: No
Some groups entirely in Catalan: No
Some groups entirely in Spanish: No

Teachers

Carlos Hernández Castellano
Àngela Ribas Artola

Prerequisites

There are no prerequisites, but it is recommended to have passed Ecology, Mathematics and Physics.

Objectives and Contextualisation

The objective is to know and analyze the processes that determine the functioning of the biosphere on a global scale, with a particular emphasis on the mutual interaction between biota and geophysical components, and on the alterations that human activity is introducing. It will also be considered the environmental history of the Earth as a tool to understand the processes that currently govern the functioning of the planet.

This implies a conception of the Earth as a system with different components interconnected in the atmospheric, oceanic and continental environments. This connection results on processes as balance and flow of energy, climate system, atmospheric and ocean circulation, primary production, distribution and functionalism of biomes, nutrient fluxes.

Content

Program

PART 1

1. Introdution: the Earth system
2. Introduction to system dynamics theory: states and feed-backs.
3. Global energy balance and atmospheric composition.
4. Atmospheric circulation and climate
5. Ocean circulation.
6. Criosphere
7. Litosfere and plate tectonics

PART 2

1. Earth climatic history
2. Primary production
3. Biomes functioning
4. Effects of biota on climate
5. Carbon balance
6. Global nutrient cycle
7. Global change and climate change