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

Víctor Flo Sierra
Maria Vives Ingla
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.

Competences

• Apply statistical and computer resources to the interpretation of data.
• Be able to analyse and synthesise
• Be able to organise and plan.
• Characterise, manage, conserve and restore populations, communities and ecosystems.
• Develop a sensibility towards environmental issues.
• Develop critical thinking and reasoning and communicate ideas effectively, both in the mother tongue and in other languages.
• Develop independent learning strategies.
• Understand the processes that determine the functioning of living beings in each of their levels of organisation.
• Work in teams.

Learning Outcomes

1. Apply statistical and computer resources to the interpretation of data.
2. Be able to analyse and synthesise.
3. Be able to manage, conserve and restore all kinds of populations, communities and ecosystems.
4. Be able to organise and plan.
5. Develop a sensibility towards environmental issues.
6. Develop critical thinking and reasoning and communicate ideas effectively, both in the mother tongue and in other languages.
7. Develop independent learning strategies.
8. Identify the different levels of biological organisation and understand how these are all integrated on a global scale.
9. Work in teams.

Content

PART 1


2. Introduction to systems theory. Positive and negative feedback. Equilibriums. Qualitative behavior of dynamic systems.


PART 2


10. Terrestrial biomes functioning. Tropical rainforest, tropical deciduous forests, savannahs, warm deserts, Mediterranean forests and shrublands, cold deserts, deciduous forests, temperate rainforests, prairies, boreal forests, tundra.
11- Effect of biota on the atmosphere and the climate. Climate-vegetation feed-backs at global and regional scales: albedo, evapotranspiration, chemical composition of the atmosphere. Control of the concentration of atmospheric gases: oxygen, N2O, CO2, methane, DMS.


Methodology

Theory classes: they provide the main knowledge of the proposed subjects. However, personal study and information search is essential for the acquisition of this knowledge.

Classroom seminars: they will be based on presentations by students of topics proposed by the teachers; the presentations will be prepared in group. The contents, and the rigorous communication in public will be valued. Assistance and participation in the seminars presented by other students will also be valued, carrying out questionnaires in the classroom about the presentations.

Problem classes: Numerical resolution of problems related to the contents of some topics. They may involve the complete resolution of problems in the classroom or the correction of problems previously proposed to students. They will also be done in computer classrooms.

Activities

<table>
<thead>
<tr>
<th>Title</th>
<th>Hours</th>
<th>ECTS</th>
<th>Learning Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type: Directed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classroom seminars</td>
<td>15</td>
<td>0.6</td>
<td>1, 3, 7, 6, 8, 5, 2, 4, 9</td>
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<tr>
<td>Problem classes</td>
<td>4</td>
<td>0.16</td>
<td>1, 2, 4</td>
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<tr>
<td>Theory classes</td>
<td>30</td>
<td>1.2</td>
<td>1, 6, 8, 5, 2</td>
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<tr>
<td>Type: Supervised</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Tutorial</td>
<td>6</td>
<td>0.24</td>
<td>7, 6</td>
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<tr>
<td>Type: Autonomous</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Problemes report</td>
<td>10</td>
<td>0.4</td>
<td>1, 7, 8, 2, 4</td>
</tr>
<tr>
<td>Seminars preparation</td>
<td>20</td>
<td>0.8</td>
<td>3, 7, 6, 8, 5, 2, 4, 9</td>
</tr>
<tr>
<td>Study</td>
<td>58</td>
<td>2.32</td>
<td>7, 6, 8, 2</td>
</tr>
</tbody>
</table>

Assessment
The evaluation will be based on different activities: exams, oral presentations in public by the student, problems and resolution of questionnaires in class or autonomously. The program is structured in two parts that comprise approximately half of the content each one.

There will be two exams corresponding to the two parts of the program. To pass the program, a minimum score of 4.5 must be obtained in both exams. Students with a mark of less than 5 in any of the exams may do another examination at the end of the course. The student can only do these additional exam from the non-approved previous exams of each part (with a score of less than 5); it is not contemplated that the additional exams serve to raise the score of the approved exams.

The final grade will be obtained by weighting the scores of the different activities in the following proportion:

- Exam of the first part of the program: 35%.
- Exam of the second part of the program: 35%.
- Computer practicum: 10%.
- Seminars (oral presentation and questionnaires): 20%.

To pass the course, the final grade must be equal to or equal to 5.

The recovery system contemplates a written additional exam corresponding to the examinations of the first and the second part.

To participate in the recovery, the students must have been previously evaluated in a series of activities with a weight equivalent to a minimum of two thirds of the total grade of the program.

The students will obtain a “Non-Valuable” qualification when the evaluation activities carried out have a weighting of less than 67% in the final grade.

### Assessment Activities

<table>
<thead>
<tr>
<th>Title</th>
<th>Weighting</th>
<th>Hours</th>
<th>ECTS</th>
<th>Learning Outcomes</th>
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</thead>
<tbody>
<tr>
<td>Computer practicum</td>
<td>10%</td>
<td>1</td>
<td>0.04</td>
<td>1, 7, 5, 2, 9</td>
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<tr>
<td>Exams</td>
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<tr>
<td>Seminars</td>
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<td>2</td>
<td>0.08</td>
<td>7, 6, 8, 5, 2, 4, 9</td>
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### Bibliography

BIBIOGRAFIA


- Piñol J, Martínez-Vilalta J. 2006. Ecología con números. Una introducción a la ecología con problemas y ejercicios de simulación. Lynx.


