

**Animal and Plant Biology**

Code: 101956  
 ECTS Credits: 9

Degree	Type	Year	Semester
2500890 Genetics	FB	1	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: Yes

Some groups entirely in Spanish: No

**Teachers**

José Antonio Barrientos Alfageme

Roser Tolra Perez

**Prerequisites**

It is recommended to review the concepts related to Zoology and Botany of the Biology course studied at high school as well as the general concepts to Genetic, Evolution and Cellular Biology shown during this course

**Objectives and Contextualisation**

The course has three blocks: Botany, Plant Physiology and Zoology. An introduction to the study of the morphological and biological diversity of the several groups of plants and animals will be made under an evolutionary perspective. In the corresponding part of the Plant Physiology the student will be introduced to the basic knowledge of the biology and functioning of plants as well as their regulation by several factors. In general, throughout this course, the student must acquire a vision as complete as possible of the zoological and botanical bases and of the diversity of animals, plants from an anatomical, functional, systematic and phylogenetic perspective.

**Objectives:**

**Botany:**

- 1- Concept of Plants (broadly speaking) and the fields of study of Botany.
- 2- To study of biodiversity and plant systematics from an evolutionary perspective and discuss classification methods.
- 3- To know the main biological processes (life cycles, reproduction, nutritional strategies, dispersion), evolutionary (speciation, evolutionary tendencies, co-evolution) and ecological (habitats, adaptations to the environment) that affect plant biodiversity.
- 4- To give some knowledge about the applications of the main plants groups.

**Plant Physiology:**

- 1- To integrate the knowledge of vegetables at different organizational levels and within the entire organism.
- 2- To introduce the basic vital functions of plants.
- 3- To know the regulation by internal and external factors.

### **Zoology:**

- 1- To introduce to the student the main concepts that delimits the different levels of animal organization, as well as the main architectonic patterns of the same.
- 2- In the same way with the reproduction and development processes that condition them.
- 3- Obtain an overview of the main animal groups, based on their morphological diversity.

This objective will be delimited in three blocks:

- 1- Main groups of non-arthropod invertebrates
- 2- Main groups of Arthropods
- 3- Main groups of Chords

## **Content**

### **I: Botany**

1. Introduction.
2. Classification systems.
3. Reproduction and Biological Cycles.
4. Cyanobacteria.
5. Euglenoids and Dinoflagellates.
6. Heteroconts: Diatoms and brown algae.
7. The Rhodophyta.
8. The Chlorophyta and the Streptophyta.
9. The Bryophyta.
10. The Vascular Plants.
11. Spermatophyta I. Origen, evolution and morphology of the corm.
12. Spermatophyta II. Origin and evolution of the flower.
13. Spermatophyta III. Gymnosperms Diversity.
14. Spermatophyta IV. Angiosperms Diversity.
15. Fungal phylogeny I. Origin and phylogenetic. Zygomicota and Ascomycota.
16. Fungi phylogeny II. Basidiomycota.
17. Fungal phylogeny III. Ameoboides fungi (Mixomicets) and Pseudofongs (Heteroconts: Oomicets).
18. Symbiosis. Lichen and Mycorrhizas.

### **II: Plant Physiology**

1. The vegetal life: relation nutrition and form.
2. Water needs: concept of water potential, osmotic relationships and growth.
3. Absorption and transport of water.
4. Mineral needs: mineral nutrition of the plant.
5. Absorption and transport of nutrients.
6. Plants and light: photosynthetic pigments; Transformation of energy.
7. Carbon Reduction Assimilation: Metabolism C3.
8. Photorespiration.
9. Metabolism C4 and CAM.
10. Reduction assimilation of nitrogen and sulfur.
11. Regulation of growth and development by internal factors: Phytohormones and genetic regulation.
12. Regulation by external factors: Sensory and regulation systems of flowering.
13. Dormition. Germination of seeds.
14. Fruit formation and maturation.
15. Senescence and abscission.
16. Introduction to plant genetic improvement.

### III: Zoology

1. Introduction. General concepts
2. Main animal groups.
3. General morphology of the main groups of non-arthropod invertebrates.
4. General morphology of the main Arthropod groups.
5. General morphology of the main groups of Chordates.