

25201 - Biology

Syllabus Information

Academic year: 2024/25

Subject: 25201 - Biology

Faculty / School: 201 - Escuela Politécnica Superior

Degree: 571 - Degree in Environmental Sciences

ECTS: 6.0

Year: 1

Semester: First Four-month period

Subject type: Basic Education

Module:

1. General information

The objectives of this subject are to understand the most important and general concepts, theories and models of Biology, about molecular, cellular and structural organization of organisms, as well as genetic, physiological and reproductive mechanisms and evolution and ecological interactions of living beings, so that the student acquires a global vision of the biotic environment and a basic biological training that allows them to apply this knowledge to theoretical and practical cases.

These approaches and objectives are aligned with some of the Sustainable Development Goals, SDGs, of the 2030 Agenda and certain specific Objectives (4.7, 13.3, 15.1 and 15.4)

The subject provides knowledge of direct application in the practice of the profession in fields related to the biology of organisms and systems, and the management and conservation of biological diversity.

2. Learning results

- 1: Explain and clearly relate the fundamental concepts, models and theories implicit in the science of Biology
- 2: Analyse and synthesize information on the molecular, genetic and physiological basis of living organisms.
- 3: Identify objectives and methods for the design and development of activities in natural and environmental sciences.
- 4: Develop and exercise skills necessary for laboratory work and basic instrumentation in biology.

3. Syllabus

Theory:

1. The genome.
2. Replication.
3. Transcription.
4. Translation.
5. Gene expression.
6. Epigenetics
7. Cell cycle and cell divisions
8. Sexual reproduction in animals.
9. Sexual reproduction in plants.
10. Self-incompatibility and asexual reproduction in plants
11. Photomorphogenesis and development of plants
12. Mendelian Inheritance
13. Non-Mendelian inheritance.
14. Inheritance variations
15. Evolution.

Practical classes:

1. Microscopy concepts
2. Electron microscopy
3. Animal and plant cell
4. Plastids
5. Bacteria.
6. Mushrooms
7. DNA
8. Genetic code
9. Mitosis.
10. Karyotypes
11. Meiosis.
12. Gametes.
- 13, 14, 15. Genetic problems

4. Academic activities

Master classes: 30 hours

Sessions in which the contents of the subject are explained.

Laboratory practices: 30 hours

Practical laboratory and classroom sessions

5. Assessment system

1. Written test on the basic theoretical knowledge of Biology: adequacy between question/answer, capacity of synthesis, definition and analysis, and clarity and order of the reasoned answers. The grade for this test will be out of a maximum of 10 points and will represent 50% of the final grade. Minimum grade to pass the test: 5 points.

2. Written test on basic practical knowledge of Biology: same criteria as in 1. The grade for this test will be out of a maximum of 10 points and will represent 50% of the final grade. Minimum grade to pass the test: 5 points.

If the minimum requirements are not met in any of the evaluation tests (5 points out of 10) the subject will not be considered passed even if the final grade averaged CF, is equal to or higher than 5. In this case, the final grade shown on the records of the subject will be:

If final grade averaged, $CF > 4$, Fail, 4.

If final grade averaged, $CF < 4$, Fail, CF.

Subject success rate:

2019/2020: 40.38%

2020/2021: 40.85%

2021/2022: 40.00%

2022/2023: 41.07%

6. Sustainable Development Goals

4 - Quality Education

13 - Climate Action

15 - Life on Land