

Genetics

Code: 100984
ECTS Credits: 6

Degree	Type	Year	Semester
2500502 Microbiology	OB	1	2

Contact

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Use of languages

Principal working language: spanish (spa)
Some groups entirely in English: No
Some groups entirely in Catalan: No
Some groups entirely in Spanish: Yes

Prerequisites

There are no prerequisites, but it is recommended to review the concepts of Genetics learned in high school. Likewise, it is convenient to have a good knowledge of the basic materials studied during the first semester of the Microbiology degree, as well as of the subjects taking simultaneously during the second semester.

Objectives and Contextualisation

The studies of Genetics science comprise everything related to the hereditary material of living organisms; how it is transmitted to offspring, how it is expressed and how it varies and evolves in the populations. Genetics is a fundamental science that integrates all the levels of organization of different life forms, including molecular, population and evolution. The aim of this Genetics course is to introduce first-year students to the basic concepts of this science in order to understand: i) the laws of inheritance, ii) the cytological and molecular basis of inheritance and iii) its variation at the cellular and population level.

The main objectives of this course are:

Understanding the bases and mechanisms of biological inheritance; to develop and use genetic maps; to study the genetic variation within and between populations; to identify the structure of the genetic material and its different organization. Also, the students reasoning abilities will be promoted by answering questions and solving basic genetic problems, and by discussing scientific texts.

Content

The content of this course is the following:

An introduction to Genetics. Organization of the genetic material. Replication and recombination mechanisms. Gene expression: transcription and translation processes. Gene regulation. Point mutation and chromosomal mutation. DNA Repair. Mendelian genetics and chromosomal theory of inheritance. Patterns of gene inheritance. Sex-linkage inheritance. Patterns of two genes inheritance. Relations of dominance. Linkage and genetic maps. Quantitative genetics. Populations Genetics and evolution.