Universitat Autònoma de Barcelona

2017/2018

Molecular Genetics

Code: 100776
ECTS Credits: 6

Degree	Type	Year	Semester
2500250 Biology	FB	2	1

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

It is recommended to have passed the general course of Genetics.

Objectives and Contextualisation

This course takes place in the second-year of the Genetics degree providing the fundamental molecular knowledge of inheritance. The course is focus to give the current information on Molecular Genetics regarding gene structure and function,

DNA replication, transcription and translation, as well as regulatory mechanisms of the transmission of the genetic information. In addition, practical knowledge of the main techniques for manipulation of the genetic material are provided. Then, this course looks at the molecular basis of inheritance which principles were learned during the first year in the Genetics course.

The educational objectives are as follows:

1) Acquisition of the basic concepts in molecular genetics as well as the composition of the nucleic acids and their roles in the molecular processes.

2) To obtain the essential knowledge about the processes driving the flow of genetic information, from DNA replication, transcription and translation in the organisms.

3) To be familiar with the regulatory processes of gene expression.

Content

Content

1. Introduction to Molecular Genetics.
2. The nature of genetic material.
3. Structure of the chromosome.
4. Replication of genetic material and replication enzymes.
5. DNA Recombination and repair.
6. Transcription.

7. Types of RNA and processing mechanisms.
8. Genetic code and the translation process.
9. Prokaryotic and eukaryotic gene regulation.
10. Genome organization