UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Biology

2425-1-I0301D002-I0301D007M

Aims

The student will learn:

- the function of the main macromolecules of the cell;
- the structure of the cell membrane and its role in transport and communication;
- structure and function of the cytoskeleton;
- the molecular and cellular basis of gene expression and regulation;
- the cellular and molecular mechanisms that control cell division, differentiation, proliferation and cell-cell interaction;
- the basis and laws of the transmission of hereditary characteristics;
- the mechanisms determining the onset of human phenotypic variants.

Contents

The course aims to provide the student with the knowledge of the structure and function of pro/eukaryotic cells, thanks to the tools provided by the integration of the most current and advanced concepts of molecular and cellular biology.

Detailed program

- Structure and organization of the eukaryotic and prokaryotic cells.
- Structure and function of proteins and nucleic acids.
- DNA replication and mechanisms of DNA repair.
- Chromatin structure and the organization of the human genome.

- Organization of the eukaryotic genes.
- RNA transcription.
- Genetic code and protein synthesis.
- Regulation of gene expression.
- Signal transduction.
- Cell cycle and cell cycle regulation.
- Mitosis and Meiosis.
- Mendel’s laws.
- DNA mutations and polymorphisms.

Prerequisites

Teaching form

Lectures and 1 interactive lessons

Textbook and teaching resource

Solomon, Berg, Martin. Elementi di Biologia. EdiSES

Bonaldo, Duga, Pierantoni, Riva, Romanelli. EdiSES

Semester

First semester

Assessment method

15 questions (multiple choice) and open questions to check preparation on exam program

Office hours

By appointment required by mail

Sustainable Development Goals

GOOD HEALTH AND WELL-BEING