UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Biology

2122-1-I0303D002-I0303D007M

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.

During the Covid-19 emergency period, a mixed lecture mode will be provided: partial presence and asynchronous / synchronous videotaped lessons

Textbook and teaching resource

Solomon, Berg, Martin. Elementi di Biologia. EdiSES

Bonaldo, Duga, Pierantoni, Riva, Romanelli. EdiSES

Semester

First semester

Assessment method

Being an integrated course, the evaluation will cover all four modules.

Regarding the Biology module, the evaluation will consist of a written test that will be used to ascertain the level of knowledge and ability to understand the topics covered during the course and to be able to solve problems. The student will have to answer 15 quizzes (Multiple choice test) concerning the topics of Biology.

Oral examination will be required at professor’s discretion (discussion of the written test). The oral test will serve to clarify critical issues emerged from the written test and to verify the communication skills of the student and will focus on the topics covered by the written test.

During the Covid-19 emergency period, oral exams will only be online. They will be carried out using the WebEx platform and on the e-learning page of the course there will be a public link for access of possible virtual spectators.

Office hours

By appointment required by mail