UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

General Biology

2122-1-H4601D066-H4601D089M

Aims

GENERAL BIOLOGY
Knowledge of the main concepts in the structure and function of prokaryotic cells, eukaryotic and viruses, as well as laws governing the variability and inheritance.

Contents

GENERALBIOLOGY
Cell theory: principles of classification of living organisms, structure and organization of prokaryotic and eukaryotic cells, viruses, genes, structural differences between prokaryotic and eukaryotic genes, genome organization in prokaryotes and eukaryotes; characteristics of the human genome, variability and inheritance; the laws of Mendel and integrations.

Detailed program

GENERALBIOLOGY
Cell theory: principles of classification of living organisms, structure and organization of prokaryotic and eukaryotic cells, viruses, genes, structural differences between prokaryotic and eukaryotic genes, genome organization in prokaryotes and eukaryotes; characteristics of the human genome, variability and inheritance; the laws of Mendel and integrations.

Human reproduction - Genetic variability – Inheritance – Genes: genotype and phenotype – Diploidy and reproduction. Honologous chromosomes, alleles and loci, homozygosity and heterozygosity – Mendel's laws – Alleles: wild-type, mutated and multiple ones, dominance and recessivity – Mendel's law's implementation: epistasis, penetrance and expressivity – Sex chromosomes. Sex determination – Chromosome X inactivation. Its implication in the phenotipic manifestations of genetic diseases – Crossing over and its genetic consequences Principles and consequences of mytochondial inheritance and genomic imprinting – Examples of monogenic

inheritance: blood groups (AB0, Rh), color blindness –

Prerequisites

Aims of the course Scienze Propedeutiche

Teaching form

Frontal lectures

Textbook and teaching resource

Main Textbook

G. De Leo, E. Ginelli, S. Fasano. Biologia e Genetica EdiSES, 2013

More Resources

- H. Lodish, A. Berk, S.L. Zipursky, P. Matsudaira, D. Baltimore, J. Darnell. Molecular cell biology, Ed. FREEMAN, 6° ed. 2007.

- G. Karp. Biologia cellulare e molecolare 3° ed EDISES, 2007

- Strachan. Human molecular genetics, 4° Ed. GARLAND SCIENCE, 2010

- P.J. Russell. Genetica. 2° ed EDISES, 2007

- B. A. Pierce. Genetica. ZANICHELLI, 2005.

PPT slides from frontal lectures

Semester

2° semester

Assessment method

One exam for all three sections of the course. Written test multiple choices (around30) and 2-3 open shorts questions on all three modules. The examination is intended to test students' knowledge acquired in the different modules of the course.

Office hours

On appointment