UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Microbiology

2425-2-I0303D007-I0303D030M

Aims

Describe the morpho-functional and metabolic characteristics of microorganisms.
Illustrate the fundamentals of the microbial genetic code, the regulation of gene expression and the nature of gene mutations and recombination.
Describe host-microorganism relationships and mechanisms of microbial pathogenicity

Contents

By the end of the course, the students will have acquired the general concepts about morpho-functional, metabolic, genetic features of microorganisms and about host-microorganism relationship

Detailed program

THE BACTERIAL CELL: characteristics, morphology and structure. Morphology: Size, shape and grouping. Gram stain and other stains. The cytoplasm. Bacterial ribosomes. The cytoplasmic membrane. The cell wall. The capsule. The scourges. The fimbriae. Binary fission and bacterial growth mode. The production and germination of spores. Bacterial classification.
BACTERIAL GENETICS: The bacterial chromosome. Plasmids. Insertion sequences, transposons and invertible elements. Expression of the bacterial genome. The mutations. Intercellular transfer and recombination of genetic material. Transformation. Transduction. Lysogenic conversion. Bacterial conjugation.
BACTERIAL METABOLISM: Characteristics of bacterial metabolism. Bacterial identification by biochemical tests.
PARASITE HOST REPORT: Bacterial colonization. Bacterial adhesion and penetration into host tissues. Bacterial toxigenicity. Main characteristics and mechanism of action of exotoxins and endotoxin.
VIRUS: General characteristics, morphology, structure, replication and pathogenesis. Some examples.

FUNGI: General characteristics, morphology, structure, replication and pathogenesis. Some examples.
PARASITES/PROTOZOA: General characteristics, morphology, structure, replication and pathogenesis. Some examples.

Prerequisites

Basic knowledges dealing with biology, genetic and biochemistry

Teaching form

Monza

- 7 frontal lessons of 2 hours carried out in attendance;
- 1 2-hour lesson carried out frontally in the initial part which is aimed at involving students in an interactive way in the subsequent part. All activities are carried out in attendance
  Bergamo
- 8 frontal lessons of 2 hours carried out in attendance

Textbook and teaching resource

Eudes Lanciotti MICROBIOLOGIA CLINICA - Quinta edizione 2021 - Zanichelli

Semester

First semester

Assessment method

Closed-answer test (multiple choice) of Microbiology to check preparation on the exam programme

Office hours

By appointment required by mail

Sustainable Development Goals