UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Clinical Microbiology

2627-2-I0302D053

Aims

- To provide students with basic knowledge of clinical and systematic microbiology, including a general overview of microorganisms, analytical methods, and diagnostic techniques used in biomedical and veterinary laboratories for the diagnosis of infectious diseases, as well as those transmissible to humans from animals.
- To acquire the ability to apply achieved knowledge to the diagnostic methods and techniques acquired in the field of microbiology. Ability to critically interpret the associated microbial etiology and the qualitative and quantitative results obtained;
- To acquire independent judgment in evaluating the results obtained and verifying their quality, enabling them to critically evaluate the protocols and methods that led to these results;
- To acquire communication skills to clearly and pertinently present both technical and healthcare-related content and considerations, using appropriate terms and vocabulary to the academic and healthcare context;
- To acquire independent learning skills to connect the technical knowledge associated with the evolution of clinical microbiology applied to microbiological diagnostics with future developments in medicine and the healthcare professions.

Contents

Student’s skills:

- Classification and identification of bacteria.
- Basic knowledge of infectious diseases.
- Gram positive and gram negative bacteria. Aerobe and anaerobe bacteria.
- Antibiograms and their interpretation according to EUCAST.
- Diagnosis of bacterial, viral, parasitical, fungal infections.
- Classification and identification of bacteria.

- Basic knowledge of infectious diseases.
- Gram positive and gram negative bacteria. Aerobe and anaerobe bacteria.
- Collection, transportation and treatment of biological samples.
- Techniques of culture, identification, susceptibility testing interpretation.
- Basics of phenotypic and microbial genotypic characterization techniques.
- Microbial biobanking.
- Quality controls: CQI and VEQ in Clinical Microbiology lab.
- Alert study, infectious diseases and nosocomial infections.
- The biological risk in Microbiology lab.
- Study of pathogens, in human and veterinary medicine, applied to laboratory diagnosis.
- Definition and classification of zoonoses, main diffusion routes. Role of the laboratory technician in the diagnosis of zoonosis.
- Diagnosis of viral, parasitic or mycotic zoonoses, in relation to different biological samples.

Detailed program

Classification and identification of bacteria.

Basic knowledge of infectious diseases.

Main Gram-positive and Gram-negative pathogens. Aerobe and anaerobe bacteria. Mycobacteria. Fungal pathogens. Main viral pathogens.

Collection, transportation and treatment of biological samples. Techniques of culture, identification, interpretation.

Diagnosis of bacterial, viral, parasitical, fungal infections.

Antibiograms and their interpretation according to EUCAST.

Quality controls: CQI and VEQ in Clinical Microbiology lab.

Microbial Biobanking.

The biological risk in Microbiology lab.

Methods for the diagnosis of infectious diseases in the biomedical and veterinary laboratories.

Definition and classification of zoonoses, main diffusion routes.

Role of the laboratory technician in the diagnosis of zoonosis.

Prerequisites

Teaching form

All lessons are held in person in delivery mode

Textbook and teaching resource

Eudes Lanciotti - Microbiologia Clinica - V edizione - CEA Casa Editrice Ambrosiana

E. W.Koneman, S.D.Allen, W.M.Janda, Introduzione alla Microbiologia, Antonio Delfino Editore.

Antonelli, Clementi, Pozzi, Rossolini - Principi di Microbiologia Medica - IV edizione - CEA Casa Editrice Ambrosiana

SOPs consultabili sul sito della Health Protection Agency, all'indirizzo:
http://www.hpa-standardmethods.org.uk/pdf_sops.asp

AMCLI Percorsi diagnostici

EUCAST www.eucast.org

M.Scaglia, S.Gatti, E.G. Rondanelli PARASSITI E PARASSITOSI UMANE Selecta Medica

F.Bernieri, D.Crotti, D.Galli, A.Raglio MANUALE ILLUSTRATO DI DIAGNOSTICA PARASSITOLOGICA Bio-Dev

I.De Carneri PARASSITOLOGIA GENERALE E UMANA Casa Editrice Ambrosiana

Semester

First semester

Assessment method

Written and oral exams to check preparation for the exam program (see individual modules for the specific method adopted)

Office hours

By appointement

Sustainable Development Goals

GOOD HEALTH AND WELL-BEING