UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Clinical Biochemistry

2627-1-F0602Q094

Aims

This class aims to study the fundamentals of the laboratory methods relevant for qualitative and quantitative study of pathogens and biological processes in medical field and to study the effect of a disease or a pharmacological therapy on biochemical processes of organs, biological tissues and fluids.

1. Knowledge and understanding skills. The knowledge provided offers the tools to understand the main analytical parameters related to clinical biochemistry.
2. Applied knowledge and understanding skills. The knowledge forms an initial knowledge base for approaching the diagnostic methods of major pathologies.
3. Judgment autonomy. The course provides the essential knowledge base for understanding and verifying a diagnostic hypothesis.
4. Communication skills. The course provides some basic elements of the scientific language commonly used in the field of clinical biochemistry.
5. Learning ability. The knowledge provided by the course is an indispensable prerequisite for effective learning of content delivered in various fields of medicine and for practice in an analytical laboratory.

Contents

In the first part of the class, clinical biochemistry basic topics will be presented. In particular we will focus on laboratory analysis, collection and conservation of biological samples, methods of acquisition of laboratory data and analytical techniques.

In the second part of the course, analytical methodologies and clinical studies will be considered for the evaluation of disease susceptibility, diagnosis and monitoring of traditional and innovative therapies.

Detailed program

The following topics will be addressed:

-Pre-analytic phase

-Clinical laboratory principles

-Electrolytes

-Anemias

-Enzymes in clinical biochemistry

-Liver: assays to test liver functionality

-Diabetes mellitus: glycated hemoglobin

-Lipids: lipoproteins, cholesterol and atheromatous indexes

-Electrophoresis in clinical laboratory

-Allergology

-Autoimmunity: diagnostic technology

-Endocrinology: hormones and tests for endocrine system

-Hematology parameters

-Tumor markers

-Kidneys: assays to test kidneys functionality

-Emergency medicine

-Laboratory medicine and sports

-Clinical laboratory in pregnancy

-Written test simulation

-Professional opportunities presentation

Prerequisites

Basic knowledge of biology and biochemistry

Teaching form

26 h (13 lessons, 2 h each): Frontal Lesson (DE), face-to-face lessons
8 h (4 lessons of 2 h each): Frontal Lesson (DE), online lessons
4 h (2 activity of 2 h): Interactive Lesson (DI), Exercises, face-to-face lessons
4h (2 activity of 2 h): Interactive Teaching (DI), Meeting with a clinical biochemist engaged in healthcare activities and discussion on research in the field

Textbook and teaching resource

Slides and video.

Textbook: Ciaccio, Lippi Biochimica Clinica e Medicina di Laboratorio

Semester

Second semester

Assessment method

The course does not include interim tests, only a final exam.
Written and oral examination: 13 multiple-choice questions (2 point each) and 1 open question (4 points) to be completed in 45 minutes . The exam is positively evaluated with a score of 18-30. The optional oral examination will include a discussion on the written test, including questions about topics program of the course.

Office hours

Meeting on demand

Sustainable Development Goals

GOOD HEALTH AND WELL-BEING