



UNIVERSITÀ  
DEGLI STUDI DI MILANO-BICOCCA

## SYLLABUS DEL CORSO

### Scienze di Laboratorio

2425-2-I0302D008-I0302D029M

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#### Aims

Student's Skills:

- To recognise the role, limits and aims of laboratory analysis, variability causes and errors
- To describe instrument calibration, exam validation and quality controls execution
- To describe the plasma proteins study and diagnostic immunometry and enzymology
- To define the role of diagnostic tests in diabetes, in cardiovascular, thyroid, hepatic diseases
- To define the role of biochemical tumor markers
- To describe Pregnancy and kidney lab monitoring
- To describe electrolytes, acid-base balance study
- To describe Urine exam, proteinuria and CSF tests

#### Contents

The goal of the course is to provide the knowledge about roles, limits and aims of laboratory tests, Good Laboratory Practise, variability and errors, quality control. Fundamentals of protein study and diagnostic enzymology and immunometry. Lab tests for the study of diabetes, cardiovascular, thyroid pathologies, hepatic, pregnancy, kidney physio-pathology, hydro electrolytic and acid-base balance. CSF and urine exam. Tumor markers

#### Detailed program

- Lab tests: which, how and when
- Good Laboratory Practice, variability and errors

- Instrument calibration, exam validation and Quality Control execution
- Exam interpretation, reference range, Reference Change Value, cutoffs
- Diagnostic enzymology and immunometry
- Diabetes, Obesity e Cardio-vascular risk monitoring
- AMI diagnostics
- Thyroid, plasmatic protein, electrolytes, acid-base balance study
- Kidney physio-pathology: creatinine and GFR
- Urine exam and proteinuria
- CSF tests
- Hepatic Diagnostics
- Pregnancy lab monitoring
- Tumor markers

## **Prerequisites**

Objectives of the course of Clinical Biochemical Analysis (these are the courses indicated in Regolamento)

## **Teaching form**

All activities are conducted in presence:

- 8 (2-hour) lectures performed in erogative mode;
- 12 (2-hour) exercises performed in erogative mode.

## **Textbook and teaching resource**

Teachers will provide educational material

Spandrio L. Biochimica Clinica Ed Sorbona.

Henry JB, et al. Clinical diagnosis and management by laboratory methods. Saunders Elsevier.

Prencipe L. Approccio alla Chimica Clinica.

## **Semester**

First semester

## **Assessment method**

Oral interviews on the topics covered in lecture. Examination topics cover the entire program covered in lecture, so as to assess understanding of the topics, with particular reference to the acquisition of knowledge related to the stages of the diagnostic process, the main techniques of clinical biochemistry analysis used in analytical

laboratories, and the diagnostic strategies used to investigate the alterations in metabolic and organ processes most commonly evaluated by clinical biochemistry analysis.

Each student is questioned individually, with a minimum of 4 questions, some of which are subject knowledge and others are reasoning questions.

Assessment will take into account how well the student centers the topic of the question, without dispersive digressions, how he/she contextualizes the topic, and the level of confidence in exposition.

The final assessment will take into account the results obtained in the different tests.

## **Office hours**

By appointment

## **Sustainable Development Goals**

GOOD HEALTH AND WELL-BEING

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