UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Technical Sciences for Laboratory Medicine

2526-3-I0302D035-I0302D048M

Aims

Classification and description of the main features of qualitative and quantitative analytical methods. Internal and external reference standards, calibration curves, data analysis, sources of errors. Principles of chromatography. HPLC and GC. Derivatives for chromatography. Mass spectrometry.

Contents

The primary goal of the course is to provide tools for the understanding of basic and practical aspect of chromatography and of spectroscopy for qualitative and quantitative analysis,

Detailed program

Classification of analytical methods. Qualitative and quantitative analysis and their terminology and methods.

Sample preparation: extraction and purification by chromatographic techniques. Chromatography and its principles: efficiency of a chromatographic column, , resolution, selectivity)

Reference products: internal and external calibrators. Gas-chromatography/HPLC: derivatization reactions. Instrumental characteristics and components: of GC and HPLC: injectors, columns, detectors.

Mass spectrometry: instruments, principles, components: ionization processes (EI-CI), analyser (magnetic, quadrupolar, ion trap), detectors (EM-PM). EI spectra interpretation. Examples of practical applications.

Prerequisites

Teaching form

Teaching method: all in-person for providing both lessons and exercises: (24 hours)

Textbook and teaching resource

The Teachers will provide educational materials

Semester

First semester

Assessment method

Written test: multiple choice test and open questions

Oral Test: discussion of written test

Office hours

On appointment requested by mail

Sustainable Development Goals

GOOD HEALTH AND WELL-BEING