

# MEDICAL BIOTECHNOLOGY AND NANOBIOTECHNOLOGY (LM49)

(Lecce - Università degli Studi)

## Teaching BIOANALYTICAL CHEMISTRY

GenCod A006023

**Owner professor** Maria Rachele GUASCITO

**Teaching in italian** BIOANALYTICAL CHEMISTRY

**Teaching** BIOANALYTICAL CHEMISTRY

**SSD code** CHIM/01

**Reference course** MEDICAL BIOTECHNOLOGY AND

**Course type** Laurea Magistrale

**Credits** 6.0

**Teaching hours** Front activity hours: 52.0

**For enrolled in** 2021/2022

**Taught in** 2022/2023

**Course year** 2

**Language** ENGLISH

**Curriculum** NANOBIOTECNOLOGICO

**Location** Lecce

**Semester** First Semester

**Exam type** Oral

**Assessment** Final grade

**Course timetable**

<https://easyroom.unisalento.it/Orario>

## BRIEF COURSE DESCRIPTION

- Introduction to bio-analytical chemical methods and related analysis methodologies.
- Focuses on the most important aspects in all steps of an analytical method to determine biological active compounds in various biological matrices.
- Instrumental methods of advanced analysis for applications in bio-analytical chemistry.
- Main spectroscopic techniques for the chemical analysis of complex biological matrices and interfaces.
- Methods for flow analysis.
- Iphenate techniques: GC, LC, EC coupled with MS and SIMS.
- Surface analytical techniques for bio-interface and biomaterials.
- Electrochemical (bio)- sensors.

## REQUIREMENTS

**Base knowledge analytical chemistry is recommended.**

## COURSE AIMS

The main objectives of this course are summarized below:

- To apply the basic concepts of analytical chemistry to real biological systems, which are relevant in different fields, mainly human health, environmental control, food safety and biotechnology industry.
- To integrate the bio-recognition and the biological reactions to the analytical methodology.
- To use the most common techniques in chemistry to analyze, separate and identify compounds within a biological framework.
- To apply this knowledge to the resolution of bio-analytical problems.

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#### TEACHING METHODOLOGY

Learning methods consist of formal lectures and integrative lectures making use of slides. Outside these activities, the students are expected to read assigned papers from the scientific literature.

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#### ASSESSMENT TYPE

The exam is oral with a mark out of thirty. The test also includes the discussion of the reports produced by the students relating to their practical laboratory activities.

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#### REFERENCE TEXT BOOKS

1. Bioanalytical Chemistry

By: Susan R. Mikkelsen, Eduardo Cortón

· Publisher: Wiley-Blackwell

· Print ISBN: 9781118302545, 1118302540

· eText ISBN: 9781119057741, 1119057744

· Edition: 2nd

1. Bioanalytical Chemistry

By: Andreas Manz; Nicole Pamme; Dimitri Iossifidis

· Publisher: ICP

· Print ISBN: 9781860943706, 1860943705

· eText ISBN: 9781911298250, 9781860945922, 1860945929