UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

SYLLABUS DEL CORSO

Tirocinio Professionalizzante Area Odontoiatrica 1 - Laboratorio Scienze di Base

2627-2-H4602D015

Aims

Students will acquire a general knowledge of the main laboratory methodologies, with particular reference to nucleic acid and protein analysis techniques, cell cultures, PCR and cytofluorimetry methods, and histological analysis. They will also gain practical skills to perform basic laboratory activities.

The aim of the course is to provide students with the necessary skills to:

1. Independently understand the experimental part of a basic research scientific article related to the methodologies covered.
2. Understand and apply basic laboratory protocols.
3. Contextualize and apply the learned techniques in realistic situations through virtual simulations.
4. Discuss the results obtained in practical session and draw conclusions.
5. Work in a group, collaborating on the same experimental protocol.

Contents

The Internship provides the students with basic training on the main cellular. molecular and histological techniques applied in a research laboratory.

Detailed program

- laboratory safety

- cell cultures: principles, main types and applications with a particular focus on stem cells and tissue engineering
- protein analysis: extraction and electrophoresis and immunoblotting methods
- nucleic acid analysis: extraction and electrophoresis assays
- PCR methods
- flow cytometry: principles and applications
- histology: tissue processing, histological staining and immunohistochemistry. Microscopy techniques

The student will have the opportunity to practice some basic techniques among those addressed

Prerequisites

Completion of the general workplace safety training courses for workers and the lab safety module for students (both available via e-learning) is required.

Teaching form

The teaching activities will be a mix of lectures and lab work.
Some of these activities will include in-person computer lab exercises using a dedicated platform (Labster) to simulate lab experiments. There will also be a theoretical introduction to the topics covered in these simulations. Additionally, some of the subjects will be put into practice in the teaching laboratory.

Specifically, this will include:

- 8 three-hour lessons, combining lectures with interactive in-person sessions.
- 10 four-hour lab sessions conducted interactively in person.

Textbook and teaching resource

The teachers will provide slides of the lectures.

Semester

Second semester of the second year.

Assessment method

Attendance at a minimum of 70% of the internship hours is required.

Assessment

Proficiency will be assessed using the Labster platform, which is used for lab simulations. During virtual exercises, students will be asked questions about both theoretical and practical content, and points will be awarded. To pass each simulation, students must achieve at least 70% of the maximum score obtainable.

The final evaluation will be pass/fail.

Office hours

Monday to Friday, by appointment

Sustainable Development Goals

QUALITY EDUCATION