



UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

SYLLABUS DEL CORSO

Laboratorio di Biologia Molecolare

2122-3-E1301Q077-E1301Q086M

Aims

The molecular biology module provides skills in the basics molecular biology techniques.

Knowledge and understanding.

At the end of the course, students will gain knowledge on the basic molecular biology techniques.

Ability to apply knowledge and understanding.

At the end of the course, students will gain the ability to interpret correctly the experimental protocols, to carry out the proposed experimental protocols in compliance with good laboratory practices and safety standards and to collect and process the experimental data.

Making judgements.

At the end of the course, students will be able to process what they have learned, to consider the critical points, to evaluate critically the results obtained and to recognise the contexts of application of the experimental methods of the course.

Communication skills.

At the end of the course, students will be able to process the experimental data obtained and to describe the procedures and the results, using the most appropriate technical language.

Learning skills.

At the end of the course, students will be able to correctly interpret experimental protocols similar to those already performed practically, whose application is required in different and more complex contexts.

Contents

Basic principles and techniques for the characterization and manipulation of nucleic acids will be exposed and some basic molecular biology protocols will be performed in a guided manner.

Detailed program

Aimed at groups of about 40 students, the laboratory experiments take place over several days and are always preceded by an adequate introduction to both the technique to be performed and the instrumentation and reagents to be used. Normally, the experiments are followed by data collection and collective discussion.

The program will be developed by analyzing in detail the following experimental procedures:

- 1) Cloning of plasmid DNA (assembly of a DNA ligation reaction; transformation of *Escherichia coli* with plasmid DNA);
- 2) Verification of a plasmid DNA construct (amplification by polymerase chain reaction - PCR).

Prerequisites

Basics of molecular biology.

Teaching form

Lab experimental activities in equipped labs.

Textbook and teaching resource

Experimental protocols will be provided to students at the beginning of the teaching activity, and uploaded on the moodle teaching Platform.

Semester

First semester

Assessment method

For the Molecular Biology module, as for all modules of the LIB course, there is no possibility to take partial or "module" exams. The exam for the entire LIB course is a 2-hour written test, to be taken in the computer room, through the e-learning platform, and aimed at assessing the skills acquired for each of the 6 modules.

The test consists of 46 closed-ended questions (exercises, multiple-choice questions) and a single open-ended

question on the disciplinary content of one of the modules. The closed-ended questions allow to reach a maximum score of 29 (automatically assigned by the system, at the end of the test); in addition to these, the open-ended question can be assigned from 0 to 2 points, subject to correction by each teacher. The open-ended question will be evaluated only when a score of ≥ 16.82 is achieved on the closed-ended questions. An overall score >30 allows for honors.

Office hours

The teachers will receive by appointment requested by e-mail.
