UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Molecular Biology Laboratory

2021-3-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

Notions will be presented concerning characterization and manipulation of nucleic acids by leading the student in laboratory activities.

Detailed program

The course will be articulated in laboratory experiments, for no more than 50 students. In detail, the students will be engaged in experiments articulated in 8 afternoon-sessions, preceded by an adequate introduction on the scientific and technique issues necessary to understand the procedures and to utilise the instruments and reagents required and followed by the discussion concerning the obtained results and the possible applications of the experimental procedures learned.
The following procedures will be presented:
1) Assembly of a DNA ligation reaction to subclone a fragment into a plasmid vector and Escherichia coli transformation;
2) Verification of the construct obtained in step 1, by 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

Written test focussed on all teaching modules: the exam will be aimed at the evaluation of acquired competences in all disciplines involved. The ability to elaborate and integrate the experimental work with the theoretical basis of the experiments, and the development of interdisciplinary links will be evaluated. The assessment will be organised in six sections, with open questions and multiple choice tests. In order to pass the exam it is necessary that the

student has an evaluation greater than or equal to 18 in all the disciplines. In the event that the student does not achieve sufficiency even in one discipline, the test must be re-supported in full. The duration of the assessment will be 2 hours.

Office hours

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