



Visiting Professor Program Academic Year 2024/2025

TEACHING COMMITMENT: 60 hours

COURSE TITLE

Integrated Laboratory Techniques: Cellular and Molecular Biology

TEACHING PERIOD

1st term

SCIENTIFIC AREA

Cellular Biology and Molecular Biology

LANGUAGE USED TO TEACH

English

COURSE SUMMARY

The VP will provide a broad and updated overview of Cellular and Molecular Biology methods currently used for research and development purposes, with particular emphasis on the most modern techniques, for two groups of students (section 1 and 2). He will introduce the principal technologies related to cell biology, molecular biology, biochemistry and microscopy necessary to study the function of a gene and the main biological processes.

Specifically, for the cell biology module, the course will include different aspects of cell culture analysis in vitro and the use of cells for in vivo transplants; protein analysis; microscopy techniques. Instead, for the molecular biology module, the course will provide the theoretical and practical information necessary for the understanding of modern nucleic acid sequencing technologies, their genomic, transcriptomic and epigenomic applications and their integration with other methods. Advanced knowledge will also be provided on the most modern technologies for the engineering of

nucleic acids, with particular regard to those necessary for the development of complex cellular and animal models.

A fundamental aspect of the teaching will be to highlight how the different cellular or molecular biology technologies addressed can be integrated to answer specific biological questions.

LEARNING OBJECTIVES

At the end of the course, the students should have acquired the theory of the main experimental methods used to understand cell and molecular biology and they should be able to properly choose the necessary technology to address specific cellular and molecular biology questions. They should also know how to integrate them to reach the fixed goals. The VP should propose the listed subjects with the ACTIVE LEARNING methodology and should have extensive experience of active learning methods, developing educational materials, evaluating educational practices and training and mentoring teachers. In this way the students should acquire a more modern approach to develop a biological question.

The course is essential to improve student activities in the laboratories.

OTHER ACTIVITIES BESIDES THE COURSE

The VP should also help various faculties to organize future courses by using the active learning methodology.

VISITING PROFESSOR PROFILE

The VP should have a relevant experience in teaching Biology (General or Cellular/Molecular Biology) courses at International Universities, by applying in particular the "active learning method". The VP should be a native English speaker (he/she will teach the specified course in English) and should have acquired significant relevant experience in organising courses, lectures, problem solving sessions and writing and grading exams since he/she will also help faculties at our department to reorganise their courses including more with active learning method approaches.

CONTACT REFERENT

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