

Teaching guide

IDENTIFICATION DETAILS

Degree:	Biotechnology		
Field of Knowledge:	Science		
Faculty/School:	Experimental Science		
Course:	INTEGRATED LABORATORY II		
Type:	Compulsory	ECTS credits:	6
Year:	2	Code:	2028
Teaching period:	Fourth semester		
Area:	Work Placement		
Module:	Experimental Methods in Biotechnology		
Teaching type:	Classroom-based		
Language:	English		
Total number of student study hours:	150		

SUBJECT DESCRIPTION

The Laboratory Course II is a compulsory semester course that is taught during the second year of the Biotechnology Degree. This course is part of the Practicum subject, which belongs to the Experimental Methods in Biotechnology module.

Laboratory Course II will be performed in the University laboratories and has been designed as real-life, professional experimental situations, from the different subjects coursed during the 2nd year. The course is intended to provide the students not only with the basic laboratory skills needed in a biotechnology or bioscience lab but also to develop other personal aptitudes such as critical thinking, accuracy or teamwork, which are

essential in research practice.

SKILLS

Basic Skills

Students must have demonstrated knowledge and understanding in an area of study that is founded on general secondary education. Moreover, the area of study is typically at a level that includes certain aspects implying knowledge at the forefront of its field of study, albeit supported by advanced textbooks

Students must be able to apply their knowledge to their work or vocation in a professional manner and possess skills that can typically be demonstrated by coming up with and sustaining arguments and solving problems within their field of study

Students must have the ability to gather and interpret relevant data (usually within their field of study) in order to make judgments that include reflections on pertinent social, scientific or ethical issues

Students must be able to convey information, ideas, problems and solutions to both an expert and non-expert audience

Students must have developed the learning skills needed to undertake further study with a high degree of independence

General Skills

To acquire firm theoretical, practical, technological and humanistic training needed to develop professional activity.

Capacity for teamwork and group management.

To have acquired the ability for analytical, synthetic, reflective, critical, theoretical and practical thought.

Capacity for problem-solving and decision-making.

To be able to plan time effectively.

To foster a concern for knowledge as a key tool in the personal and professional growth process of a student.

To develop capacity for and a commitment to learning and personal development.

To develop an ability to search for, take in, analyse, sum up and relate information.

To develop oral and written communication skills.

To understand the fundamental laws and principles of physics, mathematics, chemistry and biology as the

foundation for the mental structure of a biotechnician.

To acquire the skills needed for experimental work: design, preparation, the compilation of results and the obtainment of conclusions, understanding the limitations of an experimental approach.

Specific skills

To understand the mathematical and physical foundations of the basic instrumental techniques of use in a biotechnology experimentation laboratory.

To be able to apply the most widely used instrumental techniques in a biotechnology experimentation laboratory: chromatography, electrophoresis, absorption, cytometry, purification and quantification of macromolecules, centrifugation, etc.

To work suitably in a laboratory with biological material (bacteria, fungi, viruses, animal and plant cells, plants and animals) and with regard to the safety, handling and disposal of biological waste.

To be able to design and suitably execute an experimental protocol based on theoretical knowledge in a host of subjects.

To be familiar with and apply the rules and general principles of health and safety in laboratories.

To organise and suitably plan work in the laboratory.

To identify and define laboratory instruments and materials.

To be able to describe, quantify, analyse and critically assess the results of experiments performed in the laboratory.

To be able to approach a subject by means of rigorous, profound and comprehensive thought.

Capacity for written and oral communication of the knowledge acquired.

To be able to apply the theoretical knowledge acquired for solving problems and practical cases linked to the various subjects.

To be able to assess the knowledge acquired.

To nurture an attitude of intellectual curiosity and a quest for truth in all areas of life.

DISTRIBUTION OF WORK TIME

CLASSROOM-BASED ACTIVITY	INDEPENDENT STUDY/OUT-OF-CLASSROOM ACTIVITY
--------------------------	---

70 hours	80 hours
----------	----------