

**Laboratory I**

Code: 101947  
ECTS Credits: 3

Degree	Type	Year	Semester
2500890 Genetics	OB	1	1

**Contact**

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**Use of languages**

Principal working language: catalan (cat)  
Some groups entirely in English: No  
Some groups entirely in Catalan: No  
Some groups entirely in Spanish: No

**Prerequisites**

- Students must have passed or are currently taking the theoretical courses corresponding to the laboratory
- Student must have passed the laboratory safety and biosecurity test, and be knowledgeable and accept th
- Students should review the theoretical contents of each laboratory unit.
- All the laboratory units are mandatory.

Students who do not wear a laboratory coat cannot enter the laboratory.

**Objectives and Contextualisation**

The Integrated Laboratory I is the first laboratory course of a set of six that are distributed throughout six semeste

These laboratory courses aim to provide a solid basis for experimental procedures, techniques and skills in gene

The laboratory practices reinforce the theoretical concepts acquired in the theoretical classes, allowing to fully un

The Integrated Laboratory I has as its training objectives the acquisition of experimental competencies in 3 specifi

- Cell Biology
- Histology



## Microbiology

### Cell Biology

1. To apply microscopic and cell culture techniques to recognize and describe structures and processes at the level of the cell.

### Histology

1. To know how to apply basic histological techniques for microscopic diagnosis.
2. Identify at the microscope different levels of animal tissues and their cellular and extracellular components.

### Microbiology

1. To apply the general techniques of microorganisms culture, observation, identification and conservation.

## **Content**

### Cell Biology module

Practice 1: Cellular diversity under the conventional optical microscope: The plant cell.

Practice 2: Cellular diversity under the conventional optical microscope: The animal cell.

Practice 3: Introduction to the electronic microscope.

Practice 4: Transport through the membrane: osmosis and diffusion.

Practice 5: Mitotic cell division.

Practice 6: Meiotic cell division.

Practice 7: Cell fragmentation and separation of organelles

Practice 8: Cultures: Basic techniques of cell cultures (counting and viability).

### Histology module

Practice 1: Initiation to the histological techniques for processing animal material. Microscopic identification of epithelial tissues.

Practice 2: Microscopic identification of connective and adipose tissues.

Practice 3: Elaboration and staining of blood smears of sheep. Microscopic identification of elements of blood and

Practice 4: Microscopic identification of muscular and nervous tissues.

#### Microbiology module

- Normative for working with microbiological and biosecurity.
- Fundamental concepts in preparing culture media, reagents and microbiology material.
- Control of aseptic technique.
- Methods for culture of microorganisms in tube and plate.
- Obtaining pure cultures.
- Count of microorganisms: count of viable and direct or total count
- Isolation of microorganisms: dilution and depletion in plate.
- Different culture media: enrichment, selective and differential.
- Observation of microorganisms in the optical microscope: brightfield microscopy and stains (simple, differential)
- Microbiological tests to characterize and identify microorganisms
- Ubiquity and diversity of microorganisms.
- Population growth of microorganisms
- Antibigram: diffusion technique