



INTEGRATE LABORATORY OF MEDICAL BIOTECHNOLOGY

Enrollment year	2019/2020
Academic year	2021/2022
Regulations	DM270
Academic discipline	BIO/13 (APPLIED BIOLOGY)
Department	DEPARTMENT OF BIOLOGY AND BIOTECHNOLOGY "LAZZARO SPALLANZANI"
Course	BIOTECHNOLOGY
Curriculum	Medico
Year of study	3°
Period	Annual (01/10/2021 - 14/06/2022)
ECTS	12
Lesson hours	144 lesson hours
Language	Italian
Activity type	ORAL TEST
Teacher	BALDUINI ALESSANDRA (titolare) - 1 ECTS ABBONANTE VITTORIO - 2 ECTS CICCONE ROBERTO - 1 ECTS GIORGIO ELISA - 2 ECTS NUCLEO ELISABETTA - 3 ECTS RIVA FEDERICA - 3 ECTS
Prerequisites	Basic elements of Cell Biology and Chemistry. Microbiology Laboratory: Basic knowledge of Microbiology, referring in particular to the structure of the bacterial cell and antibiotics.
Learning outcomes	Acquisition by the student of theoretical and practical knowledges related to the main morphological investigation methods to understand and describe the structural organization of animal tissues through histological observations of healthy preparations.

Therefore, at the end of the histo lab, the student will:

- know how to use a common transmitted light optical microscope;
- know the main methods and tools of the morphological investigation by the microscope (having understood the basics of some analytical procedures to determine the structure-function relationship of cells in tissues and tissues within the organ)
- being able to describe a common histological slide, evaluating the morphological characteristics of cells and tissues, and their structural organization, also thanks to the different dye affinities with the histological dyes used.

Microbiology Laboratory: Acquisition by the students of knowledge related to the diagnostic microbiology principles and the laboratory role in monitoring and preventing antibiotic resistance.

Course contents

- Methods and tools for morphological investigations: the optical microscope as the tool of choice for histological analysis.
- Preparation of a tissue slide: fixation, inclusion, cutting, staining
- Practical example of a histological staining

Microbiology Laboratory: practical exercises concerning to the cultivation of microorganisms in culture media, Gram-staining and microscopic examination, biochemical-metabolic test for microorganisms identification, antibiotic susceptibility test by Kirby-Bauer and determination of Minimum Inhibitory Concentration (M.I.C.) by E-test. Reading and interpretation of antibiotic susceptibility testing results. Experiment of enzymatic extraction and of bacteria count. Test to ESBL and carbapenemases identification.

Teaching methods

Practical labs: individual observations at the optical microscope of healthy histological slides and probably comparative descriptions with pathological tissues.

Microbiology Laboratory: laboratory exercises.

Reccomended or required readings

Histology's tests and Atlas, as:

- Wheater, Istologia e anatomia microscopica
- Ross, Atlante di Istologia e Anatomia microscopica
- Stevens, Istologia Umana.

Microbiology Laboratory: materials provided by the teacher.

Assessment methods

Oral examination at the end of the lab.

Further information

Reception: by appointment, after contacting the teacher by e-mail at: federica.riva01@unipv.it

Medical Genetics:
elisa.giorgio@unipv.it
roberto.ciccione@unipv.it

Clinical Biochemistry:
alessandra.balduini@unipv.it
vittorio.abbonante@gmail.com

Microbiology Laboratory:
elisabetta.nucleo@unipv.it

**Sustainable development
goals - Agenda 2030**

[The goals](#)