COURSE DATA

DATA SUBJECT

Code: 47093
Name: Histología e histopatología de animales bioindicadores
Cycle: Master's Degree
ECTS Credits: 3
Academic year: 2025-26

STUDY (S)

Degree	Center	Acad. year	Period
2285 - Máster Universitario en Contaminación Ambiental y Ecotoxicología	Facultat de Ciències Biològiques	1	Second quarter

SUBJECT-MATTER

Degree	Subject-matter	Character
2285 - Máster Universitario en Contaminación Ambiental y Ecotoxicología	Ecotoxicología	COMPULSORY

COORDINATION

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PONSODA I MARTI XAVIER JOSEP

SUMMARY

The subject "Histology and histopathology of bioindicator animals" is responsible for transmitting basic knowledge about the principles of cellular damage and pathogenesis related to toxins and pollutants in vertebrates and invertebrates. The subject will study the basic procedures and techniques for the preparation of samples and tissues, as well as the techniques of inclusion, staining and cutting (microscopic techniques).

PREVIOUS KNOWLEDGE

RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE

There are no specified enrollment restrictions with other subjects of the curriculum.

OTHER REQUIREMENTS

None specified

COMPETENCES / LEARNING OUTCOMES

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Acquire the capacity for autonomous and organised learning and for adapting to new situations.

Act autonomously in learning, make informed decisions in different contexts, issue judgements based on experimentation and analysis and transfer knowledge to new situations.

Be capable of producing a histopathological diagnosis in an environmental context.

Collaborate effectively in work teams, taking on responsibilities and leadership roles and contributing to collective improvement and development.

Develop the ability to work in multidisciplinary teams and to cooperate effectively.

Develop the capacity for analysis, synthesis and critical thinking in applying the scientific method.

Know and understand, within the area of the degree, inequalities based on sex and gender in society; integrate different needs and preferences based on sex and gender into the design of solutions and problem-solving.

Know the animal models used for studying human diseases in relation to environmental pollution.

Know the histology of species used as bioindicators, sentinels or experimental models in an environmental context.

Learn how to write scientific articles in the fields of environmental pollution and ecotoxicology.

Understand the effects of pollutants on animal and plant physiology.

Use different bibliographic sources and biological databases.

Use indicators of environmental risks and health-related damage.

DESCRIPTION OF CONTENTS

THEORETICAL CLASSES

- Topic 1. Working with bioindicator animals. The 3R principle in working with laboratory animals. Introduction to Histology and Histopathology. Types of tissues.
- Topic 2. Histological and microscopic techniques. Preparation of histological samples. Microtomy. Basic, immunohistochemical and immunofluorescent stains. Bright field, fluorescence, confocal and electron microscopy.
- Topic 3. Histology and comparative histopathology of the digestive system.
- Topic 4. Histology and comparative histopathology of the respiratory system
- Topic 5. Histology and comparative histopathology of the integumentary system.

- Topic 6. Histology and comparative histopathology of the excretory system.
- Topic 7. Histology and comparative histopathology of the nervous system.
- Topic 8. Histology and comparative histopathology of the endocrine system.

PRACTICAL CLASSES

- Practice 1. Histological Technique: Sample Preparation for Microscopic Observation
- Practice 2. Observation and Identification of Histological Samples

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Theory	22,00
Laboratory	8,00
Total hours	**30,00**

NON PRESENCIAL ACTIVITIES

Activity	Hours
Attendance at other activities	0,00
Individual or group project	0,00
Independent study and work	30,00
Preparation of lessons	0,00
Preparation for assessment activities	15,00
Resolution of case studies	0,00
Total hours	**45,00**

TEACHING METHODOLOGY

Theoretical lessons to develop fundamental knowledge

Practical and demonstrative sessions in which common procedures in the histology and histopathology laboratory will be addressed

All activities will use the Virtual Classroom for document exchange and communication

EVALUATION

Written exam on theoretical and practical classes, 70% of the final grade

Non-face assessment through questionnaires in Aula Virtual, 10% of the final grade

Continuous assessment of students in theory and laboratory classes: participatory attendance, handling of the material, understanding of the practices, teamwork, etc. 20% of the final grade.

REFERENCES

Pawlina, Ross. (2020). Histología. Texto y Atlas color con Biología Celular y Molecular. 8ªed. Ed.

Wolters Kluwer, Sobotta-Welsch U. (1999). Histología (atlas en color de anatomía microscópica). 5ª ed. Marbán

Young, B., Heath, J.W. y Woodford, P. (2014). Wheaters Histología funcional. Texto y Atlas en Color.6ª ed. Elsevier.

Young, B., Stewart, W. y ODowd, G. (2014). Wheaters Basic Pathology. A Text, Atlas and Review of Histopathology.5ª ed. Elsevier

http://histoaps.uv.es

https://histology-world.com/