COURSE DATA

DATA SUBJECT

Code: 34343
Name: Pathological anatomy
Cycle: Undergraduate Studies
ECTS Credits: 4.5
Academic year: 2025-26

STUDY (S)

Degree	Center	Acad. year	Period
1208 - Degree in Podiatry	Facultat d'Infermeria i Podologia	2	First quarter

SUBJECT-MATTER

Degree	Subject-matter	Character
1208 - Degree in Podiatry	Podiatric pathology	COMPULSORY

COORDINATION

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SUMMARY

Pathological Anatomy (code 34343) is a branch of medicine that studies the morphological and biological changes that occur in disease. It defines a lesion as the morphological expression of disease. It is linked to the medical specialty of Pathological Anatomy, which, within the medical profession, analyzes biological structures and establishes the diagnosis of disease.

PREVIOUS KNOWLEDGE

RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE

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

OTHER REQUIREMENTS

Previous knowledge of Biology and Histology is recommended.

COMPETENCES / LEARNING OUTCOMES

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Know the pathological anatomy. Cellular pathology. Tissue repair. Alterations in cell growth. Nomenclature and classification of neoplasms.

DESCRIPTION OF CONTENTS

1. INTRODUCTION

Concept of Pathological Anatomy. Methods of Study.

2. ELEMENTARY LESIONS. CELL DEATH

Concept of Lesion. Models of Injury. Disease Agents.

Cellular Pathology I: Mechanisms of Cellular Injury. Hypoxic Injury. Free Radical Injury.

Cellular Pathology II: Cellular Responses to Aggression. Reversible and Irreversible Injury. Cell Death. Necrosis. Apoptosis.

Subcellular Pathology: Pathology of the Membrane and Organelles. Pathology of the Cytoskeleton and Nucleus.

3. METABOLIC DISORDERS. PATHOLOGICAL DEPOSITS

Disorders of Protein Metabolism: Hyaline, Fibrinoid, and Amyloid Substances. Disorders of Lipid Metabolism.

Cholesterol Pathology. Arteriosclerosis.

Disorders of Carbohydrate Metabolism.

Mucoid and Myxoid Degeneration. Mucopolysaccharidoses.

Pigment Pathology.

Calcium Pathology. Lithiasis. Uric Acid Pathology: Gout. Pseudogout.

4. CIRCULATORY DISORDERS

Hyperemia, Edema, and Hemorrhage: Pathophysiological Mechanisms, Types, and Evolution.

Thrombosis: Types of Thrombi. Mechanisms of Thrombus Formation. Thrombus Evolution.

Embolism: Concept and Types.

Thromboembolic Disease.

Ischemia and Infarction: Acute and Chronic Ischemia. Infarction: Concept and Types.

Disseminated Intravascular Coagulation (DIC).

5. INFLAMMATION

Inflammation: General Overview.

Acute Inflammation. Anatomical Models of Acute Inflammation.

Chronic Inflammation. Granulomas.

Infectious Pathology (Tuberculosis, Mycoses, Viruses).

Autoimmune Diseases.

6. NEOPLASMS

Concept of Neoplasia. Epidemiology. General Classification and Nomenclature of Tumors. Natural History of Cancer: Oncogenesis.

Concepts of Benignity and Malignancy. Tumor Infiltration and Invasion. Carcinoma in situ. Metastasis.

General Characteristics of Benign and Malignant Epithelial Tumors: Nomenclature and General Morphology. Melanocytic Tumors.

Benign Mesenchymal Tumors. Fibromatosis: Nomenclature and Morphology.

Malignant Mesenchymal Tumors: Nomenclature and Morphology.

Vascular Tumors. Muscular Tumors.

Cartilaginous Tissue Tumors.

Benign and Malignant Bone Tumors.

Tumors of the Peripheral Nervous Tissue. Neuritis.

Peripheral Nervous System Lesions due to Entrapment and Amputation.

7. DIABETES AND INFLAMMATORY JOINT PATHOLOGY

Pathological Anatomy of Diabetes-Related Lesions.

Diabetic Foot.

Metabolic, Inflammatory, and Degenerative Joint Pathology:

Rheumatoid Arthritis. Polyarticular Rheumatism.

Spondyloarthritis. Ankylosing Spondylitis.

Dysmetabolic Rheumatism: Gout. Gouty Foot

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Tutorials	2,00
Theory	55,50
Laboratory	10,00
Total hours	**67,50**

NON PRESENCIAL ACTIVITIES

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

TEACHING METHODOLOGY

Teaching Methodology of the Subject

Theoretical classes (21 thematic units): The professor delivers lectures to explain the most important concepts and content in a structured manner, aiming to ensure students acquire the required knowledge and skills. Student participation is encouraged. The teaching material used by the professor may be made available on the Virtual Classroom platform, if the professor deems it appropriate.

Classroom practicals: seminars. The professor introduces more specialized and in-depth topics, case studies, literature review, and/or current issues. The focus is particularly on interactive and cooperative

learning.

Laboratory practicals in small groups: These are designed to reinforce theoretical knowledge through microscopic observation (1 microscope per student) of the most representative lesions and diseases. The professor presents each microscopic slide, directly supervises the activity, and engages in interactive discussion of each case with the students.

Practical 1: The student must identify and recognize the histological tissue and the morphological changes caused by intracellular accumulation of triglycerides in hepatocytes.

Practical 2: The student must recognize the histological tissue and determine the type of cell death observed.

Practical 3: The student must recognize the histological tissue and observe the morphological changes occurring in the vascular wall of the sample.

Practical 4: The student must recognize the histological tissue and determine the type of infarction observed.

Practical 5: The student must recognize the histological tissue and observe the type of inflammatory infiltrate in the affected organ.

Practical 6: The student must recognize the histological tissue and observe the type of inflammatory infiltrate in the affected organ.

Practical 7: The student must recognize the histological tissue and identify the type of chronic

inflammatory structure characteristic of this disease.

Practical 8: The student must identify the type of chronic inflammatory structure characteristic of this disease.

Practical 9: The student must identify the type of chronic inflammatory structure characteristic of this disease.

Practical 10: The student must identify the type of chronic inflammatory structure characteristic of this disease.

Clinical practicals: Students attend clinical placements in the Pathological Anatomy departments of university hospitals to learn the full process from sample reception (biopsies and cytologies) to final diagnosis. This includes, among other steps: cutting and selecting representative areas, paraffin embedding, sectioning and routine/special staining, immunohistochemistry, and molecular techniques, ending with microscopic examination¿all under the supervision of the professor.

Scheduled tutorials in small groups: Coordinated by the professor, students work in groups on specific topics which they must then present orally or in writing. The presentation is followed by a discussion. This is a cooperative learning method involving shared responsibility.

EVALUATION

Final Grade Evaluation

The final grade for the subject will be based on the assessment of theoretical classes, seminars, laboratory practices, and group work.

The exam will take place on a pre-established date and time (OCA academic year 25/26). It will consist of

65 multiple-choice questions (with one correct answer out of four options). Each correct answer is worth 1 point. Incorrect answers will be penalized with a deduction of 0.33 points (i.e., 1 point subtracted for every 3 wrong answers). Blank answers will neither add nor subtract points.

50 questions will be based on content from Theoretical Teaching.

15 questions will correspond to content from Seminars (practicals).

During the course, students will complete a group project (seminars) on selected topics from the syllabus, which must be presented as a PowerPoint or video. The maximum score for this project is 0.5 points toward the final practical grade.

Laboratory practices (L) are mandatory. They carry a maximum score of 1 point toward the practical grade. If the student does not attend without justification, they will receive 0 points for this section.

The final grade will be calculated out of 10 points, composed as follows:

Theoretical grade (50%): Derived from the 50 multiple-choice questions in the final exam (5 points).

Practical grade (50%): Consists of:

The 15 seminar questions (3.5 points),

Group project grade (0.5 points),

Laboratory practices (1 point).

To pass the course, it is mandatory to pass both the theoretical and practical parts separately. If not, the final grade will be a fail.

To pass each part, the student must obtain at least 50% of the corresponding points:

That is, a minimum of 2.5 points in each part.

If both parts are failed, the higher of the two scores will be recorded as the final grade.

REFERENCES

- KUMAR V, ABBAS, FAUSTO Robbins y Contran. Patología Estructural y Funcional. 8ª Edición. Editorial Elsevier Saunders.

- 1. Buja LM, Krueger, GRF. (2006). Netter - Anatomía Patológica. Ed. Masson. 1ª edición. 2. Rubin R, Strayer DS. (2012). Rubin-Patología Estructural. Fundamentos Clínico-patológicos en Medicina. Ed. Wolters Kluver/Lippincott Williams & Wilkins. 6ª edición. 3. Klatt EC, Kumar V. Robbins y Cotran. (2016). Repaso de Anatomía Patológica. Preguntas y respuestas. Ed. Elservier-Saunders, 4ª edición 4. Klatt EC. Robbins y Cotran (2016). Atlas de Anatomía Patológica. Ed. Elsevier-Saunders, 3ª edición. 5. Kumar V, Abbas A, Aster JC. Robbins. (2018). Patología humana. Ed. Elsevier. 10ª edición. 6. Kumar V, Abbas A, Aster JC y Deyrut AT. Robbins. (2021). Patología esencial. Ed. Elsevier.