



## Information about the subject

**Degree:** Bachelor of Science Degree in Medicine

**Faculty:** Faculty of Medicine and Health Sciences

**Code:** 340302 **Name:** Pathological Anatomy

**Credits:** 6,00 **ECTS Year:** 2 **Semester:** 2

**Module:** Diagnostic and therapeutical procedures.

**Subject Matter:** Diagnostic procedures **Type:** Compulsory

**Field of knowledge:** Health Science

**Department:** -

**Type of learning:** Classroom-based learning

**Languages in which it is taught:** Spanish

### Lecturer/-s:

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## Module organization

### Diagnostic and therapeutical procedures.

Subject Matter	ECTS	Subject	ECTS	Year/semester
Diagnostic procedures	39,00	Basic Immunology	3,00	1/2
		Functional Assessment	6,00	This elective is not offered in the academic year 23/24
		Genetics	3,00	1/1
		Introduction to Medicine	3,00	1/2
		Laboratory of Diagnostic Tests	3,00	5/1
		Medical Microbiology and Parasitology	6,00	3/1
		Pathological Anatomy	6,00	2/2
		Physiological Records and Functional Tests	3,00	2/2
		Radiodiagnostic and Imaging Techniques	6,00	3/1
Therapeutic procedure	27,00	Anaesthesia and Resuscitation	3,00	5/1
		Biotechnology	6,00	This elective is not offered in the academic year 23/24
		General and Special Pharmacology	9,00	3/2



Therapeutic procedure	General Procedures of Intervention	6,00	This elective is not offered in the academic year 23/24
	Rehabilitation and Physical Therapy	3,00	4/2

### Recommended knowledge

#### GENERAL OBJECTIVES

Knowledge of the basic pathological processes and relate them to the etiopathogenesis, clinic, prognosis and treatment of organic diseases in order to acquire a clinicopathological vision. Teach the role that Pathology plays in medical practice for the clinical and therapeutic management of patients (Diagnostic Pathology). Knowledge of a Pathological Anatomy Unit, its possibilities and limitations in relation to the fundamental objective, diagnosis in daily medical practice.



## Learning outcomes

At the end of the course, the student must be able to prove that he/she has acquired the following learning outcomes:

- R1 Know the techniques used in Molecular Genetics.
- R2 Know the concepts around genetic variation.
- R3 Distinguish the different chromosomal abnormalities that may occur in humans.
- R4 Differentiate the different types of genetic alterations that cause disease.
- R5 Perform molecular diagnostic techniques aimed at a specific human genetic disease in the laboratory by simulation.
- R6 Perform DNA analysis using electrophoresis and interpret the results.
- R7 Identify general inflammatory and neoplastic lesions on injured tissues.
- R8 Be able to use clinical information to make reasoned differential diagnoses and diagnoses.
- R9 Know the role of Pathological Anatomy in the clinical and therapeutic management of patients, in the quality of care and in scientific research
- R10 Knowing how to access medical-scientific means of information to support and document diagnostics and scientific and research work
- R11 Know organizational structure and operation of the Pathological Anatomy Service.
- R12 Know the types of biopsies and cytologies as well as the basic methods of processing them.
- R13 Know the procedure, objectives and necessary requirements of clinical autopsy.
- R14 How it is and should include a procedural request and an Anatomic-Pathological report.
- R15 Knowledge of the technical difficulties and limitations of the Pathological Anatomy Service.



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R16 Know the microscopic observation technique.





## Competencies

Depending on the learning outcomes, the competencies to which the subject contributes are (please score from 1 to 4, being 4 the highest score):

BASIC		Weighting			
		1	2	3	4
CB1	Students have demonstrated to possess and understand knowledge in a study area that starts from the base of the general secondary education, and is usually found at a level that, while supported by advanced textbooks, also includes some aspects that involve knowledge from the forefront of their field of study				X
CB2	Students know how to apply their knowledge to their job or vocation in a professional way and possess the competences that are usually demonstrated through the elaboration and defense of arguments and the resolution of problems within their area of ??study				X
CB3	Students have the ability to collect and interpret relevant data (usually within their area of study) to make judgments that include a reflection on relevant social, scientific or ethical topics				X
CB4	Students can pass on information, ideas, problems and solutions to both a specialized and non-specialized audience				X
CB5	Students have developed the learning skills needed to undertake further studies with a high degree of autonomy				X
GENERAL		Weighting			
		1	2	3	4
CG1	Recognizing the essential elements of the medical profession, including ethical principles, legal responsibilities, and patient-centered professional exercise		X		
CG2	Understanding the importance of such principles for the benefit of the patient, society and profession, with special attention to professional secrecy		X		
CG3	Knowing how to apply the principle of social justice to professional practice and understanding the ethical implications of health in a changing global context		X		



CG4	Developing professional practice with respect to patient autonomy, beliefs and culture	X			
CG5	Recognizing the limitations themselves and the need to maintain and update their professional competence, giving special importance to the autonomous learning of new knowledge and techniques and to the motivation for quality				X
CG6	Developing professional practice with respect for other health professionals, acquiring teamwork skills				X
CG12	Understanding the basis of action, indications and efficacy of therapeutic interventions, based on available scientific evidence		X		
CG15	Having the ability to make an initial diagnostic judgment and establish a reasoned diagnostic strategy				X
CG18	Indicating the most appropriate therapeutics of the most prevalent and chronic acute processes, as well as terminally ill patients	X			
CG21	Listening to carefully, obtain and synthesize relevant information about the problems afflicting the patient and understand the content of this information		X		
CG22	Writing medical histories and other medical records in an understandable way to outsiders			X	
CG23	Communicating effectively and clearly, both orally and in writing, with patients, family members, media workers and other professionals				X
CG30	Basic knowledge of the National Health System and health legislation			X	
CG32	Knowing how to use information and communication technologies in clinical, therapeutic, preventive and research activities			X	
CG33	Maintaining and using records with patient information for further analysis, preserving data confidentiality			X	

SPECIFIC		Weighting			
		1	2	3	4
CE61	Assessing the risk-benefit ratio of diagnostic and therapeutic procedures	X			
CE62	Knowing the indications of biochemical, haematological, immunological, microbiological, anatomopathological and imaging tests			X	



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TRANSVERSAL		Weighting			
		1	2	3	4
CT1	Analytical and synthesis capacity				X
CT2	Planification and organization capacity	X			
CT6	Manage information capacity		X		





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	Yes	No
I have taken personal action and know my own skills and	X	X



## Assessment system for the acquisition of competencies and grading system

Assessed learning outcomes	Granted percentage	Assessment method
	0,00%	Open questions
R1, R2, R3, R4, R5, R9, R11, R12, R13, R14, R15	70,00%	Tests
R10	5,00%	Practices
R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13, R14, R15, R16	5,00%	Participation in class
R6, R7, R8, R16	20,00%	Practice exam

### Observations

To achieve the approved level, it will be a necessary condition to have achieved a minimum score of 5 out of 10, both in the multiple choice test (multiple choice tests), and in the practical test. Attendance at practices is mandatory to be able to take the practical exam. The "Practices" section is related to the presentation of a Cynical Case.

### MENTION OF DISTINCTION:

According to Article 22 of the Regulations governing the Evaluation and Qualification of UCV Courses, the mention of "Distinction of Honor" may be awarded by the professor responsible for the course to students who have obtained, at least, the qualification of 9 over 10 ("Sobresaliente"). The number of "Distinction of Honor" mentions that may be awarded may not exceed five percent of the number of students included in the same official record, unless this number is lower than 20, in which case only one "Distinction of Honor" may be awarded.



## Learning activities

The following methodologies will be used so that the students can achieve the learning outcomes of the subject:

- M1 Masterclass
- M2 Problems resolution and practical cases
- M4 Content presentations by teacher
- M5 Knowledges and skills explanation
- M6 Laboratory practices
- M7 Oral presentation by student
- M8 Group activities supervised by professor
- M9 Knowledge acquirance through student interaction and activity
- M11 Personalised attention by professor
- M12 Tests to understand the level of knowledge acquirance and skills
- M13 Written work
- M14 Online activity on e-learning
- M15 Personal study
- M16 Information research
- M17 Discussion and solving issues in group



- M18 Work in team
- M19 Group work for searching, discussion and information research
- M21 Supervision of clinical histories

## IN-CLASS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
Theory class M1, M2, M4, M5	R6, R7, R8, R10, R11, R12, R13, R14, R15, R16	36,00	1,44
Seminar and group practices M2, M4, M5	R7, R12, R16	9,00	0,36
Practices in small groups M2, M4, M5	R5, R6, R7, R8, R9, R10, R11, R12, R13, R14, R15, R16	4,50	0,18
Tutoring M2	R5, R6, R7, R8, R9, R10, R11, R12, R13, R14, R15, R16	1,50	0,06
Evaluation M2	R5, R6, R7, R8, R9, R10, R11, R12, R13, R14, R15, R16	1,50	0,06
<b>TOTAL</b>		<b>52,50</b>	<b>2,10</b>

## LEARNING ACTIVITIES OF AUTONOMOUS WORK

	LEARNING OUTCOMES	HOURS	ECTS
No attendance M2, M5	R5, R6, R7, R8, R9, R10, R11, R12, R13, R14, R15, R16	97,50	3,90
<b>TOTAL</b>		<b>97,50</b>	<b>3,90</b>



## Description of the contents

Description of the necessary contents to acquire the learning outcomes.

Theoretical contents:

Content block

Contents



## BLOCK 1. GENERAL PATHOLOGY

Unit 1. Pathology: Concept and historical evolution. Pathology as a morphological substrate of the disease. Diagnostic procedures and Hospital Committees. Map of processes in the activity of the Pathological Anatomy Service.

Unit 2. Injury, adaptation and cell death. Mechanisms and evolution of cell injury. Types of injury. Necrosis and apoptosis. Cellular response to aggression; Cellular adaptation: hypertrophy, hyperplasia, atrophy and metaplasia. Structural models of glandular atrophy and hyperplasia.

Unit 3. Inflammation and repair. Acute and chronic inflammation. Acute inflammation. Mediators of inflammation. Cytokines Natural evolution of inflammation. Morphological patterns of inflammation. Chronic inflammation. Repair, regeneration and healing. Mother cells. The cell cycle and its regulation. Growth and Transcription Factors. Intercellular matrix. Healing and repair of wounds. Healing pathology.

Unit 4. Hemodynamic Disorders, Thromboembolic Disease and Shock. Aetiopathogenesis of arteriosclerosis. Aneurysms., Vasculitis, diabetic vasculopathy. Thromboembolic disease, ischemia and infarction. Structural models. Bleeding disorders. Shock, pathogenesis of septic shock. Phases of shock.

Unit 5. Immunity disorders and genetic diseases. Hypersensitivity reactions. Autoimmune diseases. Transplant rejection. Immunodeficiency syndromes.

Unit 6. Genetic Diseases and Congenital Anomalies. Mendelian disorders; disorders associated with defects in structural proteins. Receptor proteins, enzymatic defects and cell growth regulatory proteins. Chromosomal disorders of the autosomes and sex chromosomes. Molecular diagnosis. Perinatal infections. Inborn errors of metabolism. Sudden Infant Death Syndrome. Tumors and pseudotumor lesions in infants and children.



Unit 7. Neoplasms. General nomenclature. Concept of benignity and malignancy. Undifferentiation and anaplasia. Dysplasia concept. General classification of neoplasms. Molecular bases and etiopathogenesis of cancer. Activating and inhibiting genes. Natural history of cancer. Cancer and Immunity. Carcinogenic agents. Clinical aspects of cancer. Paraneoplastic syndromes. Cancer staging.



## BLOCK 2. SPECIAL PATHOLOGY.

1. Special Diagnostic Techniques in Surgical Pathology.  
Clinical Autopsy.

Immunohistochemistry Methods. Molecular Pathology  
Methods. Clinical Autopsy.

### 2. HEAD AND NECK PATHOLOGY:

Salivary glands. Paranasal sinuses and nasopharynx. Oral  
cavity. Hearing. Larynx and Trachea.

### 3. DERMATOPATHOLOGY.

Inflammatory conditions Cysts, Proliferations and  
Neoplasms.

### 4. CARDIOVASCULAR PATHOLOGY.

Heart. Pericardium. Blood vessels.

### 5. BREAST PATHOLOGY.

Inflammatory Conditions and Neoplasms.

### 6. THORACIC PATHOLOGY: Lung and Pleura:

Obstructive Pulmonary Diseases. Restrictive and Interstitial  
Diseases. Infectious diseases. Neoplastic Conditions.

### 7. THORACIC PATHOLOGY: Thymus and Mediastinum:

Benign and malignant diseases of the thymus and  
mediastinum.

### 8. GASTROINTESTINAL PATHOLOGY.

Esophagus. Stomach. Small intestine. Vermiform appendix.  
Large intestine.

### 9. HEPATOBILIOPANCREATIC PATHOLOGY.

Liver. Gallbladder. Pancreas.

### 10. URINARY PATHOLOGY.

Bladder, Urethra and Ureter. Kidney.

### 11. MALE GENITOURINARY PATHOLOGY.

Prostate and seminal vesicle; Testicle and Testicular  
Annexes; Penis and scrotum.

### 12. PATHOLOGY of the FEMALE REPRODUCTIVE





## SYSTEM.

Vulva. Vagina. Uterus: cervix and body. Ovary and Fallopian Tubes.

## 13. PATHOLOGY OF SOFT PARTS AND BONE.

Soft parts. Bone and Joints.

## 14. HEMATOPATHOLOGY.

Lymph nodes Spleen. Bone marrow.

## 15. ENDOCRINE PATHOLOGY.

Thyroid gland Parathyroid glands. Hypophysis. Adrenals

## 16. PATHOLOGY OF THE CENTRAL NERVOUS SYSTEM.

Central Nervous System. Eye And Ocular Attachments.

### Temporary organization of learning:

Block of content	Number of sessions	Hours
BLOCK 1. GENERAL PATHOLOGY	8,00	16,00
BLOCK 2. SPECIAL PATHOLOGY.	18,25	36,50



## References

Histology for Pathologists; 5th Ed; 2020.  
ISBN: 9781496398963.

Robbins Basic Pathology, 10th Ed; 2018.  
ISBN: 9780323353175.

Rosai and Ackerman's Surgical Pathology; 11th Ed; 2018.  
ISBN: 9780323442084.

Differential Diagnosis in Surgical Pathology; 3th Ed; 2015.  
ISBN: 9781455770137.

EXAMENES MIR.

### **CASOS CLINICOS:**

The New England journal of  
medicine: <https://www.nejm.org/multimedia/images-in-clinical-medicine>.

JAMA: <https://jamanetwork.com/collections/44038/clinical-challenge>

Department of Pathology at the University of Pittsburgh School of

Medicine: <https://path.upmc.edu/cases/>.



## Addendum to the Course Guide of the Subject

Due to the exceptional situation caused by the health crisis of the COVID-19 and taking into account the security measures related to the development of the educational activity in the Higher Education Institution teaching area, the following changes have been made in the guide of the subject to ensure that Students achieve their learning outcomes of the Subject.

**Situation 1: Teaching without limited capacity** (when the number of enrolled students is lower than the allowed capacity in classroom, according to the security measures taken).

In this case, no changes are made in the guide of the subject.

**Situation 2: Teaching with limited capacity** (when the number of enrolled students is higher than the allowed capacity in classroom, according to the security measures taken).

In this case, the following changes are made:

### 1. Educational Activities of Onsite Work:

All the foreseen activities to be developed in the classroom as indicated in this field of the guide of the subject will be made through a simultaneous teaching method combining onsite teaching in the classroom and synchronous online teaching. Students will be able to attend classes onsite or to attend them online through the telematic tools provided by the university (videoconferences). In any case, students who attend classes onsite and who attend them by videoconference will rotate periodically.

In the particular case of this subject, these videoconferences will be made through:

☒ Microsoft Teams

☐ Kaltura



## **Situation 3: Confinement due to a new State of Alarm.**

In this case, the following changes are made:

### **1. Educational Activities of Onsite Work:**

All the foreseen activities to be developed in the classroom as indicated in this field of the guide of the subject, as well as the group and personalized tutoring, will be done with the telematic tools provided by the University, through:

☒ Microsoft Teams

☐ Kaltura

Explanation about the practical sessions:



## 2. System for Assessing the Acquisition of the competences and Assessment System

### ONSITE WORK

#### Regarding the Assessment Tools:

☒ The Assessment Tools will not be modified. If onsite assessment is not possible, it will be done online through the UCVnet Campus.

☐ The following changes will be made to adapt the subject's assessment to the online teaching.

Course guide		Adaptation	
Assessment tool	Allocated percentage	Description of the suggested changes	Platform to be used

The other Assessment Tools will not be modified with regards to what is indicated in the Course Guide.

#### Comments to the Assessment System: