

ACADEMIC YEAR 2023/2024

General information	
Academic subject	GENERAL PATHOLOGY
Degree course	II
Academic Year	2022-2023
European Credit Transfer and Accumulation System (ECTS)	
Language	Italian
Academic calendar (starting and ending date)	IV Bimester. Starting on May and ending in June
Attendance	Obligatory

Professor/ Lecturer	
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Tutoring (time and day)	On site or through Teams Tuesday :9.00-10.00; 15.00-16.00 ;Wednesday: 9.00-11.30;Friday: 8.30-10.30.

Syllabus	
Learning Objectives	<p>The General Pathology course aims to present students, with the use of appropriate medical-scientific terminology, the basic concepts of injury, damage and alteration in various animal diseases.</p> <p>Students will be led, through theoretical teaching and laboratory exercises and possibly in the sector room, to acquire:</p> <ul style="list-style-type: none"> a) the ability to understand the methods and mechanisms of damage production caused by various types of etiological agents; b) the ability to identify the damage response mechanisms caused by articulated cellular and tissue systems of a living organism together with its multiform molecular complexes; c) the basic techniques to discriminate the main alterations from both histological, cytological and macroscopic point of view, in order to achieve a morphological diagnosis.
Course prerequisites	The student must have already followed and taken the exams of Physiology 1 and 2, Veterinary Microbiology and Immunology as well as all the disciplines of the first year of the course.
Contents	<p>Concept and definition of pathological state: homeostasis, etiology and pathogenesis. Study tools and techniques in general pathology: histology, immunohistochemistry, biochemistry, molecular biology. Damage and cell and tissue response. Causes of cell damage. Reversible, irreversible cell damage and cell death. Chronic cell damage and cellular adaptation. The state of acute inflammation and the vascular and cellular phase of the acute inflammatory response. Effector cells and chemical mediators of acute inflammation. Particular types of inflammation. Morphological classification of exudates in acute inflammation. Positive and negative aspects of chronic inflammation. Evolution of the acute inflammatory response to chronic inflammation, fibrosis and abscess formation. Mechanisms of the chronic inflammatory response. Effector cells of the chronic inflammatory response. Pathologies related to inflammation. Tissue renewal and repair.</p>

	Regeneration, healing and fibrosis: definitions. Control of normal cell proliferation and tissue growth. Tissue regeneration mechanisms. Interactions of the extracellular matrix and cell-matrix. Tissue repair. Scar formation and fibrosis. Skin wound healing. Tissue repair after damage and inflammation. Neoplasms and tumor biology: characteristics of benign and malignant neoplasms. Etiology of neoplasms. Molecular basis of tumors. Biology of tumor growth. Main clinical features of tumors. Hemodynamic alterations and thrombosis. Hyperemia, Edema. Coagulation disorders: hemorrhage and thrombosis. Alterations in blood flow and perfusion. Shock. Embolism. Brief notes on diseases of the immune system
Books and bibliography	Zachary, James F., Pathologic basis of veterinary disease James F. Zachary. Saint Louis: MO, Elsevier; Kumar, Vinay; Abbas, Abul K.; Aster, Jon C., Robbins and Cotran pathologic basis of disease Vinay Kumar, Abul K. Abbas, Jon C. Aster with illustrations by James A. Perkins Philadelphia: Elsevier, 2015
Additional materials	In addition to the texts listed above, which are available in the best university libraries in the most recent editions, the lecture notes will be used. In addition to the above bibliographic indications, it is also advisable to consult the text of Veterinary General Pathological Anatomy and Histology by Paolo Stefano Marcato (Casa Editrice Esculapio, 1997).

Work schedule			
Total	Lectures	Hands on (Laboratory, working groups, seminars, field trips)	Out-of-class study hours/ Self-study hours
Hours			
65	40	25	
ECTS			
6	4	2	
Teaching strategy	<p>Theoretical lessons will take place through technology enhanced or blended learning according to ministerial directives, with the aid of a personal computer connected to a projector and power point lessons, with the additional display of macroscopic and micro-photographs and with videos and seminars relating to the topics covered in class, in connection with other foreign universities.</p> <p>During the lesson, students are encouraged, through spontaneous questions or interventions, to clarify concepts concerning the topic with references to anatomy, biology, biochemistry, endocrinology, physiology and other related disciplines. For the practical lessons, we will resort to seminars on specialized topics and practical exercises, during which organs of different animal species will be used to introduce students to the main bases of the alterations of the same organs and tissues in order to practice the etiopathogenetic evaluations of the various lesions presented during the lectures, both from a macroscopic and anatomo-histopathological profile and also for cytological hints with the aim of reaching the basic elements for a correct morphological diagnosis, a necessary prelude to understand Pathological Anatomy and the characterizing and professionalizing disciplines for the Vet.</p>		
Expected learning outcomes	<p>At the end of the course, students will acquire:</p> <ul style="list-style-type: none"> ○ knowledge relating not only to the evolutionary-pathogenetic mechanisms that govern and regulate the onset and development of lesions and the mechanisms 		

	<p>of adaptation and cell and tissue damage, but also to the consequent defensive processes opposed by the organism (inflammation, regenerative response, reparative activity), both immunopathological and neoplastic involving the various tissue and organic districts of the host. The topics covered by the course will be treated according to an interdisciplinary approach, taking care to interact in this sense, as far as possible, with teachers of related or, in any case, connected subjects and disciplines.</p> <ul style="list-style-type: none"> o Particular emphasis will be given to the etiological and pathogenetic aspects of neoplasia; o skills for the macroscopic recognition of the main characteristics of degenerative, inflammatory and neoplastic lesions of domestic animals through the visualization of macroscopic findings directly with the aid of macro-photographs, with the projection of histological findings (micro-photographs) and, where possible, with the use of an optical microscope; o ability to recognize and describe the pathogenetic and molecular mechanisms of cell and tissue damage in relation to the various etiological causes of disease; the main processes that cause the onset of circulatory disorders, hemodynamic alterations and thermoregulation in pets; the basic principles of the genesis of the innate and acquired immune response and of the processes underlying hypersensitivity phenomena and autoimmune diseases.
Knowledge and understanding on:	<ul style="list-style-type: none"> o The knowledge acquired by the students will be related not only to the pathogenesis, to the mechanisms of adaptation and to cell and tissue damage, but also to the consequent defensive processes opposed by the organism (inflammation, regenerative response, reparative activity), and to the etiological and pathogenetic factors of neoplasia.
Applying knowledge and understanding on:	<ul style="list-style-type: none"> o Students will have to demonstrate the ability to recognize the basic etiopathogenetic mechanisms of various animal diseases and acquire skills in the macroscopic and microscopic recognition of the main characteristics of degenerative, inflammatory and neoplastic lesions of domestic animals through the visualization of macroscopic findings directly with the aid of macrophotographs or macroscopic observation of organs and tissues, with the projection of histological findings (photomicrographs) and, where possible, with the use of a microscope
Soft skills	<ul style="list-style-type: none"> • Making informed judgments and choices • At the end of the course, the student should acquire the ability to formulate and identify the main etiopathogenetic elements of veterinary diseases and express their opinion and critical judgment on these issues. • Communicating knowledge and understanding • The student should acquire the skills and scientific terminology to be able to correctly relate to veterinarians and professionals in the sector • Capacities to continue learning • The student should acquire the expertise to improve his / her knowledge independently through further and in-depth studies, more advanced courses and training periods at specialized facilities.
Assessment and feedback	
Methods of assessment	The skills acquired will be assessed towards the end of the course, through

	questions and presentations prepared by the students on topics related to the course.
Evaluation criteria	<ul style="list-style-type: none"> • Knowledge and understanding: <ul style="list-style-type: none"> • Know the main basic pathogenetic mechanisms that lead to the establishment of functional and morphological alterations, develop the ability to recognize organs and lesions and to the correct use of language for histological description - acquisition of diagnostic and communication skills. • Applied knowledge and understanding: <ul style="list-style-type: none"> • Identify the main macro and microscopic aspects of the main pathologies of domestic animals Make the student familiar with the optical microscope acquisition of professional skills. • Autonomy of judgment: <ul style="list-style-type: none"> o Being able to express his opinion on his own • Communication knowledge and understanding: <ul style="list-style-type: none"> • Being able to interpret and discuss with colleagues the main pathological changes presented during the lessons. • Communication skills: <ul style="list-style-type: none"> o good ability to present independently and with a critical sense the proposed topics. • Capacities to continue learning <ul style="list-style-type: none"> o To improve his knowledge of the topics through advanced courses and training periods
Criteria for assessment and attribution of the final mark	<p>The assessment of the learning achieved takes place through an oral exam with the aim of verifying the student's ability to apply their knowledge and to perform the necessary logical-deductive connections.</p> <p>It is usually based on four questions, one relating to the general part and the others that include the most important chapters of General Pathology.</p> <p>Intermediate tests are scheduled in the middle of the course and the final evaluation will consist of the average of the intermediate test and the outcome of the oral test.</p>
Additional information	