

Syllabus of the course
– SPECIAL VETERINARY PATHOLOGY II –
Module 1
course coordinator
Prof. Giuseppe Sarli

The course consists of:			
<ul style="list-style-type: none"> • 45 hours of theoretical lectures of which: <ul style="list-style-type: none"> ○ 30 delivered as "in-presence" mode; ○ 15 delivered as asynchronous lectures attended through the platform VIRTUALE; • 8 hours of practical activities. • 			
Topics and skills acquired	General topics	Specific topics	hrs
			0,5
	<i>Information on the course</i>	Presentation of the course and explanation on the organization of the theoretical and practical parts. Presentation of the procedures concerning the student evaluation during the examination. Presentation of classroom verification activity with woodclap. Presentation of optional work to be carried out.	0,5
<p style="text-align: center;">1. PATHOLOGY OF THE RESPIRATORY SYSTEM (TOT. 11,5 HOURS)</p> <p>[On airways and lung knowledge on: a) the pathologic entities; b) the macroscopic features, the proper morphologic diagnosis and, if applicable, also etiology and the name of the disease; c) the etiopathogenesis]</p>	<i>Defense mechanisms</i>	Asynchronous lesson. Pathogenesis. Defense mechanisms in the upper airway, conduction zone, and broncho-alveolar tracts..	1
	<i>Nasal cavities and airways</i>	Gross features of: nasal cavity (haemorrhages, phlogosis: aetiology and morphological types); larynx and trachea (haemorrhages, oedema, phlogosis: aetiology and morphological types); airways: stenosis, bronchiectasia (aetiopathogenesis and morphological macroscopic patterns); bronchitis and bronchiolitis (classification and pulmonary consequences).	1,5
		Asynchronous lesson. Species pathology. Infectious bovine rhinotracheitis (IBR), equine adenitis, glanders. Inflammation of the guttural pouch. Swine atrophic rhinitis; parasitic diseases.	1
	<i>Non-inflammatory lung pathology</i>	Asynchronous lesson. Pathogenesis. Lung emphysema, atelectasis and oedema.	1
		Lung: variation of pulmonary air content: classification, gross examination and histological aspects of atelectasis (congenital and acquired) and of emphysema (parenchymatous and interstitial, acute and chronic).	0,5
		Lung abnormalities of blood flow: gross examination and pathogenesis of hyperaemia, hischemia, pulmonary embolism and thrombosis. Pulmonary oedema: macroscopic and microscopic features, complications..	0,5
	<i>Pneumonias</i>	Asynchronous lesson. Pathogenesis of pneumonias.	1,5
		Pneumonia: gross features and comparative analysis of bronchopneumonia, fibrinous pneumonia, interstitial pneumonia, purulent pneumonia, granulomatous pneumonia.	1
		Asynchronous lesson: pathogenesis of tuberculosis. Gross features of lung in tuberculosis of bovine, horse, swine, dog and cat.	1
		Asynchronous lesson. Species pathology. Bovine pneumonias: enzootic pneumonia, shipping fever, ARDS-BRSV, fog fever, extrinsic allergic alveolitis. Swine pneumonias: enzootic pneumonia, pleuropneumonia, interstitial pneumonia. Canine and feline pneumonias: CDV, FHV and FCV.	1
		Asynchronous lesson. Species pathology. Pulmonary parasitic diseases of the airways (Strongyloidosis), of the pulmonary circulation (Filariasis, Angiostrongylosis) and lung pathologies caused by parasites migration (Ascarioidea).	1
	<i>Tumours</i>	Enzootic and sporadic tumours of nasal cavities. Primary and secondary lung cancer. Primary: anaplastic carcinoma and lung adenocarcinoma. Ovine pulmonary carcinoma: etiology, macroscopic and microscopic features. Pleural neoplasms: mesothelioma.	0,5
2. PATHOLOGIES OF THE	<i>Thoracopathies</i>	Pneumothorax. Hydrothorax, haemothorax, Chylothorax, Pleuritis	1,5

THORACIC PERICARDIAL CAVITIES (TOT. 2,5 HOURS) [a] to identify the different thoracic pathologic collections and to know their etiopathogenesis]		(classification, pathogenesis). Tuberculous pleuritis. Canine pleural actinomycosis.	
	Pericardiopathies	Hydropericardium, hemopericardium, pericarditis (classification and aetiology);	1
3. PATHOLOGY OF THE CARDIOCIRCULATORY SYSTEM (TOT 4,5 HOURS) [On heart and vessels knowledge on: a) the pathologic entities; b) the macroscopic features, the proper morphologic diagnosis and, if applicable, also etiology and the name of the disease; c) the etiopathogenesis]		Asynchronous lesson. Pathogenesis of thrombosis in endocarditis, arteritis and phlebitis.	0,5
	Heart	Heart: malformations, myocardiosis, myocardial necrosis (causes and effects), myocardial hypertrophy, myocarditis with particular reference to purulent, lymphocytic and granulomatous myocarditis. Heart parasitic diseases.	2
		Endocardium: calcification, endocardiosis, fibroelastosis; endocarditis (pathogenesis, aetiology, classification) Heart neoplasms	1
	Vessels	Blood vessels: aneurysm, thrombosis, regressive arteropathies (calcifications, hyalinosis, fibrinoidosis, amyloidosis, arterosclerosis), arteritis (acute and chronic, pathogenesis). Veins: thrombosis, phlebitis. Lymphatics: lymphangectasia, lymphangitis. Parasites of vessels. Neoplasms of vessels.	1
4. PATHOLOGY OF THE URINARY SYSTEM (TOT.11 HOURS) [On kidney and urinary tract knowledge on: a) the pathologic entities; b) the macroscopic features, the proper morphologic diagnosis and, if applicable, also etiology and the name of the disease; c) the microscopic features of nephrosis and nephritis; d) the etiopathogenesis]	Kidney: developmental and circulatory disturbances	Kidney: aplasia, hypoplasia, fused kidneys, congenital and acquired renal cysts: macroscopic aspects and pathogenesis. Perirenal pseudocysts.	1
		Asynchronous lesson. Pathogenesis of renal ischemia, glomerular and tubular degenerative changes.	1,5
		Kidney: gross features of hyperaemia, haemorrhages, hischemia, renal papillary necrosis, infarct.	1
	Nephrosis	Gross features of non-inflammatory glomerular (amyloid glomerulonephrosis) and tubular damage (ischemic and toxic tubulopathies: hischemia, mycotoxins, heavy metals, pulpy kidney; hemo-myoglobinuric and colemic tubulopathies, mineral deposits (nephrocalcinosis, oxalates, "uric acid infarcts").	2
	Nephritis	Asynchronous lesson. Pathogenesis of nephritis (glomerulonephritis, interstitial nephritis, purulent nephritis).	1,5
		Kidney: gross features and comparative analysis of glomerulonephritis, interstitial nephritis, purulent nephritis, granulomatous nephritis.	1
		Asynchronous lesson. Species pathology. Glomerulonephritides in swine, horse, bovine, dog, cat. Interstitial nephritis in bovine (focal, diffuse, maculosa alba, calcinosis), swine, dog, cat. Renal parasitosis: Klossielliosis, Lehismaniasis, Encephalitozoonosis, Microascariidiosis, halicephalobiasis.	1
	Urinary tract	Urinary tract: ureters: ectasia, occlusions, urolithiasis (classification, pathogenesis, consequences of bovine, canine and feline urolithiasis); cystitis (classification, pathogenesis), hydronephrosis.	1
	Tumours	Primitive renal epithelial (adenoma, carcinoma) and mesenchymal neoplasms and nephroblastoma; secondary renal neoplasms. Neoplasms of the urinary tract, bovine enzootic hematuria.	1
	5. PATHOLOGY OF THE HAEMOPOIETIC SYSTEM (TOT 6 HOURS) [On spleen and lymph nodes knowledge on: a) the pathologic entities; b) the macroscopic features, the proper morphologic diagnosis and, if applicable, also etiology and the name of the disease; c) the etiopathogenesis]	Bone marrow	Bone marrow: involution, hyperplasia, aplasia, gelatinous atrophy, haemosiderosis, necrosis.
Lymph nodes		Lymph nodes: hypoplasia, atrophy, pathological pigmentations, necrosis, abnormalities of blood flow and pneumatosis. Macroscopic and microscopic features of simple (acute and chronic), purulent, hemorrhagic and necrotizing, granulomatous and piogranulomatous lymphadenitis. Pathology of hemolymphnodes.	2
Spleen		Spleen: malformations; abnormalities of blood flow (passive hyperaemia, haematomas, infarcts), degenerations (atrophy, hyalinosis, amyloidosis, haemosiderosis, necrosis), splenitis (hyperemic-haemorrhagic, hyperplastic, purulent-gangrenous, necrotizing, fibrous, granulomatous).	1,5
Lymphoma		Asynchronous lesson. Anatomic and histologic classification of lymphoma. Assessment of the immunophenotype of a lymphoma.	1
		Asynchronous lesson. Species pathology. Anatomic feature of bovine,	0,5

		equine, swine, canine and feline lymphoma.	
6. PATHOLOGY OF THE MAMMARY GLAND (TOT 3 HOURS) [On mammary gland knowledge on: a) the pathologic entities in inflammation and neoplasia; b) the macroscopic features of mastitis and the proper morphologic diagnosis; c) the etiopathogenesis]	Mastitis	Mammary gland. Mastitis: aetiology, pathogenesis and classification of the main types of bovine mastitis (fibrinopurulent or gangrenous mastitis, hemorrhagic-necrotizing mastitis, interstitial mastitis, granulomatous and piogranulomatous mastitis; mentions about ovine-caprine mastitis).	1,5
	Mammary tumours	Asynchronous lesson. Epidemiology of mammary tumours, hormone-dependency, dysplastic lesions, concept of simple, complex and mixed tumours, histological grading (histological grade and stage) and TNM system	1,5
7. PATHOLOGY OF SKIN (TOT. 4 HOURS) [On skin knowledge on: a) the pathologic entities; b) the macroscopic features of the elementary lesion; c) the histologic features of dermatosis and dermatitis; d) the etiopathogenesis]	Elementary lesion	Macroscopic and microscopic elementary lesions in dermatopathology (spots, papule, pompho, nodule, vesicle, exocytosis, pustula, ortho- and para-keratotic hyperkeratosis, acanthosis, spongiosis, hydropic degeneration, acantolisis, dermic oedema, dermic fibrosis, pigmentary incontinence).	1
	Dermatosis	Endocrine dermatoses (hypothyroidism, hypercorticism, hyperestrogenism)	0,5
	Dermatitis	Patterns of dermatitides (perivascular, dermovasculitis, interfacial, nodular-diffuse, vesicular-pustolosa, folliculitis-forunculosis, panniculitis) and associated diseases.	1,5
	Tumours	Benign and malignant epithelial skin tumours of epidermic or adnexal (hair follicles, sudoriparous and sebaceous glands) origin; mesenchymal tumours (fibroma, fibromatosis, sarcoma, schwannoma, hemangiopericytoma) and round cells tumours (mast-cell tumour, melanoma, histiocytoma, plasmacytoma).	1
8. FROM SYMPTOMS TO PATHOLOGY (TOT 3 HOURS)	Goal: to show at least 3 clinical cases of subjects with diseases addressed in the course.		2

Practical lessons

Topics and skills acquired	General topics	Specific topics	hrs
9. APPLYING KNOWLEDGE AND UNDERSTANDING; MAKING JUDGEMENTS (TOT. 15 ORE) [Acquisition of: a) skills on the identification of the macroscopic morphologic variations of organs; b) ability to identify a lesion and to use a proper terminology; c) ability to give a diagnosis]	Gross Pathology	No. 4 PRACTICE BLOCKS OF 2 HOURS EACH. In each block macroscopic diagnoses partly guided and partly on students' own in the anatomical room with observation of isolated organs (lung, kidney, heart, spleen, lymph nodes) of slaughtered animals (bovine, horse, pig, sheep). Each block has a skill goal to be achieved: <ul style="list-style-type: none"> Block 1. to identify, among the available organs, those with lesions and apply the descriptors (group work and final discussion with the teacher) Block 2. Bring together organs with pathologies that are the same by pathological process or pathogenesis (group work and final comparison with the lecturer). Block 3. Propose a morphological diagnosis in at least three of the available organs by working in groups. Final discussion with the teacher. Block 4. Propose morphological diagnosis in at least 1 of the available organs, set up a possible differential diagnosis and hypothesize associated lesions. Final discussion with the teacher. <p>During the activities in the anatomical room, students may ask to sample and fix organ lesions found. The student will follow the coursework in the lab, will have the slide scan available, and will be required to present the pathology found at the end of the course as per the objective in step 9 of this syllabus.</p>	8