

Module title:	Pathomorphology Module 1	ECTS	8
Polish translation:	Patomorfologia		
Course:	<b>Veterinary Medicine</b>		

Module language: English		Stage: JM-FVM	
Form of studies: <input checked="" type="checkbox"/> intramural <input type="checkbox"/> extramural	Type of module: <input type="checkbox"/> basic <input checked="" type="checkbox"/> directional	<input checked="" type="checkbox"/> mandatory <input type="checkbox"/> elective	Semester: 5 <input checked="" type="checkbox"/> winter semester <input type="checkbox"/> summer semester
Academic year:		Intake <b>2022/2023</b>	Catalogue number: FVM-V-JMSS-05W-D57_22

Module coordinator:	<b>Prof. dr hab. Rafał Sapieryński</b>		
Teachers responsible for the module:	<b>Academic teachers of the Institute Veterinary Medicine; Department of Animal Pathology and Veterinary Diagnostics, Division of Pathology</b>		
Objectives of the module:	<p>Aim of the course is:</p> <ul style="list-style-type: none"> <li>to gain knowledge in field of pathomorphology of domestic animals</li> <li>to learn methods of performing an autopsy in various domestic animals</li> <li>to know indications and methods of collection of samples for cytopathological and histopathological examination</li> <li>to achieve ability to correctly interpret the results of histopathological and cytopathological examination</li> <li>to learn how to prepare cytopathological smears and to diagnose basic pathological changes during microscopic examination</li> </ul>		
Teaching forms, number of hours:	<p>a) Lectures; hours 30; b) Laboratory classes; hours 27; c) Seminars; hours 6; d) Tests and exams 12 hours; e) Depending on external conditions that make it impossible to conduct classes in a planned form, it is allowed to change the didactic forms</p>		
Teaching methods:	<p>Lectures, seminars, practicals in the laboratory of histopathology and necropsy room.</p> <p>Students learn theoretical information about following subjects:</p> <ul style="list-style-type: none"> <li>Introduction to pathology. Definition and origin, branches of pathology. Basis of the cytopathology. Etiology of diseases. Molecular mechanisms of reversible and irreversible cell injury.</li> <li>Necrosis. Apoptosis. Death. Postmortem changes.</li> <li>Sublethal injury. Hyaline and amyloid degeneration. Pathology of connective tissue. Abnormal cornification. Fibrinoid changes. Degeneration. Imbalances in pigments metabolism. Imbalances in minerals metabolism.</li> <li>Disorders of growth: atrophy, hypertrophy, hyperplasia, metaplasia, dysplasia.</li> <li>Circulatory disturbances. Changes in blood volume, hemorrhage, edema, and shock. Thrombosis, embolism, infarct, vascular shunts, lymphatic blockage.</li> <li>Inflammation. Origin and evolution of acute inflammation. Pathomorphology of acute inflammation. Chronic inflammation. Granulomatous inflammation. Regeneration and repair. Wound healing.</li> <li>Neoplasia. Carcinogens. Mechanisms of carcinogenesis. Oncogenes and oncogenic viruses. Tumour structure. Classification of neoplasms. Spread of neoplasms. Clinical effects of neoplasms.</li> <li>Disorders of development – teratology. Causes, mechanisms and forms.</li> </ul> <p>During histopathology laboratories students learn: to recognize and correctly describe pathologic changes during microscopic examination; basics of sample collection, histopathological procedures, methods of staining; general principles of necropsy procedure; safety rules at the necropsy room; to prepare the necropsy protocols; to perform histopathological evaluation of a sublethal injury, watery degeneration, lipid degeneration, disturbances in carbohydrates metabolism, necrosis, degeneration, disturbances of the growth, circulatory disturbances, acute and chronic inflammation, neoplasia</p> <p>Depending on external conditions that make it impossible to conduct classes in a planned form, it is allowed to change the didactic methods.</p> <p>Detailed schedule will be defined by the coordinator of the course at the beginning of semester. Detailed organization of consultations will be defined by the coordinator of the course at the beginning of semester</p>		
Formal prerequisites and initial requirements:	<p>anatomy, clinical anatomy, histology, physiology, physiopathology, immunology, microbiology.</p> <p>Student should have a theoretical and practical knowledge about subjects mentioned above</p> <p>Student is capable to work with light microscope</p>		
Learning effects	Course outcomes:	Learning outcomes relative to the course outcomes	Impact on the course outcomes*

Knowledge:	1	Student is familiar with knowledge in field of general animals pathology	B.W.1; B.W.2; B.W.3; B.W.10 A.W.1	3 2
	2	Student understands the role of general and systemic pathology in disease development, manifestation of clinical signs and the course of treatment procedure	B.W.1; B.W.2; B.W.3	3
	3	Student knows how to perform necropsy of companion and farm animals.	B.W.4; B.W.8; B.W.15	3
	4	Student describes and explains alterations on cellular, tissue, organ and whole body level during disease course	B.W.1; B.W.2; B.W.3 A.W.1; A.W.12	3 1
	5	Student describes and interprets anatomopathological lesions	B.W.3	3
	6	Student knows safety rules obligatory during necropsy and knows safety rules in histopathology laboratory	C.W.3	3
Skills:	1	Student is able to perform necropsy of animals	B.U.16	3
	2	Student is able to recognize basic pathologic lesions during histopathological examination	B.U.6; B.U.8;	3
	3	Student is able to use current medical nomenclature including Latin language	C.U.1	3
	4	Student is able to collect tissue samples to histopathological examination (tissue samples, resected tissues and masses, tissue biopsies) and to place in safety and sent them to laboratory	B.U.6	3
Competences:	1	Student formulates the opinions taking into account cellular and organ pathologies as a basis for clinical presentation of the disease and the onset of therapeutic process,	KS.5 KS.1; KS.4; KS.6; KS.7; KS.8; KS.9	3 2
	2	Student is prepared to use the sufficient knowledge and skills for further application in the learning process,	KS.4; KS.5; KS.8; KS.9 KS.1; KS.2; KS.6; KS.7 KS.3	3 2 1
	3	Student is aware of having knowledge, understands the necessity of consultancy and is prepared to share the competencies with the veterinary team and the animal's owner,	KS.1; KS.2; KS.3; KS.4; KS.7; KS.8; KS.9 KS.5; KS.6	3 2
	4	Student is aware of the necessity of constant education using scientific sources	KS.1; KS.2; KS.4; KS.6; KS.7; KS.8	3 2

		KS.3; KS.5;	KS.9
Objectives of the module required to obtain learning effects:	<p>Aim of the course is:</p> <ul style="list-style-type: none"> <li>to gain knowledge in field of pathomorphology of domestic animals</li> <li>to learn methods of performing an autopsy in various domestic animals</li> <li>to know indications and methods of collection of samples for cytopathological and histopathological examination</li> <li>to achieve ability to correctly interpret the results of histopathological and cytopathological examination</li> </ul>		
Assessment methods:	<p>Performance during necropsies, necropsy protocol, histopathology practical evaluation, 2 written tests</p> <p><b>Histopathology Colloquium comprises of two parts:</b>  a) Practical part: identification of slides (recognition at least 2 out of three slides) that is, providing a precise histopathological diagnosis (English name) - passing the practical part is a condition for joining the theoretical part of the colloquium, which takes place at the same time.  b) Theoretical part: answering the questions (written form: three questions, two concerning material from lectures and the book, one concerning description of particular histopathological change/ slide ).  * The grade of the colloquium is the grade of the theoretical part.  * If the theoretical part is not passed, both parts must be retaken.</p> <p><b>Necropsy procedures and diagnostic necropsy</b> - student knows necropsy procedures, safety rules in necropsy room and methods of samples collection (to pass this test student has to know at least 70% of obligatory material). Answering the questions (written form: three questions concerning material from the book and pre- lesson).</p> <p>No extra assessment methods are anticipated.  In case of unforeseen, unusual circumstances mandatory remote teaching and remote assessment methods might be adopted.</p>		
<p>Detail description of assessment methods;</p> <p>Formal documentation of learning outcome:</p>	<p><b>Histopathology Colloquium comprises of two parts:</b>  a) Practical part: identification of slides (recognition at least 2 out of three slides) that is, providing a precise histopathological diagnosis (English name) - passing the practical part is a condition for joining the theoretical part of the colloquium, which takes place at the same time.  b) Theoretical part: answering the questions (written form: three questions, two concerning material from lectures and the book, one concerning description of particular histopathological change/ slide ).  Student has 3 open/descriptive questions. Each answer is graded 0-3 points depending on the correct and complete information included. The incorrect information is graded as 0 points, full answer is graded as 3 points, so finally student can obtain maximally 9 points, 6 points are necessary to pass the test.  Grades are based according to rules mentioned below:</p> <ul style="list-style-type: none"> <li>0-5 pts – 2,0 (failing grade)</li> <li>6 pts – 3,0 (passing grade)</li> <li>7 pts – 3,5 (passing plus grade)</li> <li>8 pts – 4,0 (good grade)</li> <li>8,5 pts. – 4,5 (good plus)</li> <li>9 pts – 5,0 (excellent grade)</li> </ul> <p>* The grade of the colloquium is the grade of the theoretical part.  * If the theoretical part is not passed, both parts must be retaken.  *If the test is not passed in the 1st term and passed in the second term, the final grade from the test is the arithmetic mean of both grades from a given test.</p> <p><b>Necropsy procedures and diagnostic necropsy</b> - student knows necropsy procedures, safety rules in necropsy room and methods of samples collection (to pass this test student has to know at least 70% of obligatory material). Answering the questions (written form: three questions concerning material from the book and pre- lesson).  Student has 3 open/descriptive questions. Each answer is graded 0-3 points depending on the correct and complete information included. The incorrect information is graded as 0 points, full answer is graded as 3 points, so finally student can obtain maximally 9 points, 6 points are necessary to pass the test.  Grades are based according to rules mentioned below:</p> <ul style="list-style-type: none"> <li>0-5 pts – 2,0 (failing grade)</li> <li>6 pts – 3,0 (passing grade)</li> <li>7 pts – 3,5 (passing plus grade)</li> <li>8 pts – 4,0 (good grade)</li> <li>8,5 pts. – 4,5 (good plus)</li> <li>9 pts – 5,0 (excellent grade)</li> </ul> <p>*If the test is not passed in the 1st term and passed in the second term, the final grade from the test is the arithmetic mean of both grades from a given test.</p> <p>No extra assessment methods are anticipated.  In case of unforeseen, unusual circumstances mandatory remote teaching and remote assessment methods might be adopted.</p> <p>eHMS entry.  Records collected in the course portfolio i.e. individual records of student results, presence lists, database of oral and written questions, written assessments of the students.</p>		

Elements impelling final grade:	Average of positive grades from general pathology/histopathology colloquium and necropsy techniques test
Teaching base:	Teaching facilities of the Division of Pathomorphology, Department of Pathology and Diagnostics, Institute of Veterinary Medicine
Mandatory and supportive materials : 1. Lectures: general pathology 30 h. 2. Lectures: special pathology 60 h. 3. Necropsy for Veterinary Students. K. Kliczkowska-Klarowicz. SGGW, Warsaw 2017 4. Handouts – histopathology (given by lecturer) 5. Pathologic basis of veterinary disease. M. D. McGavin and J. F. Zachary. Mosby-Elsevier Ed. 6. Introduction to veterinary pathology. N. F. Cheville, Blackwell Publishing Relevant scientific publications including those of the module coordinator	
ANNOTATIONS	

\* 3 – complete and detailed, 2 – moderate, 1 – basic.

Quantitative summary of the module:

Estimated number of work hours per student (contact and self-study) essential to achieve presumed learning outcomes of the module - base for quantifying ECTS:	<b>75 h</b>
Total ECTS points, accumulated by students during contact learning:	<b>8 ECTS</b>