

Module title:	Pathomorphology Module 3	ECTS	6
Polish translation:	Patomorfologia		
Course:	Veterinary Medicine		

Module language: English		Stage: JM-FVM	
Form of studies: ☒ intramural ☐ extramural	Type of module: ☐ basic ☒ directional	X mandatory ☐ elective	Semester: 7 X winter semester ☐ summer semester
Academic year: 2022/2023		Catalogue number:	JM-FVM -JMSS-05Z/06L/07Z_20

Module coordinator:	Prof. dr hab. Rafał Sapierzyński
Teachers responsible for the module:	Academic teachers of the Institute Veterinary Medicine; Department of Animal Pathology and Veterinary Diagnostics, Division of Pathology, PhD students in accordance to the internal legal acts; visiting professors; other specialists in the field of study
Objectives of the module:	Aim of the course is: - to gain knowledge in field of pathomorphology of domestic animals - to learn methods of performing an autopsy in various domestic animals - to know indications and methods of collection of samples for cytopathological and histopathological examination - to achieve ability to correctly interpret the results of histopathological and cytopathological examination - to learn how to prepare cytopathological smears and to diagnose basic pathological changes during microscopic examination
Teaching forms, number of hours:	a) Lectures – 30 hours b) Seminars – 8 hours c) Labs – necropsy room – 12 hours d) Labs – clinical pathology – 4 hours e) Tests and exams – 6 hours Depending on external conditions that make it impossible to conduct classes in a planned form, it is allowed to change the didactic forms.
Teaching methods:	Lectures, seminars, practicals in the laboratory of histopathology and necropsy room. Students learn theoretical information about following subjects: - Clinical pathology. Methods of sample collection, handling and fixation. Results of microscopic examination - interpretation. Clinical pathology. Cytopathology of inflammation and neoplasia – selected examples. - Pathology of female reproductive system - congenital disorders, non-inflammatory disorders, inflammation, neoplasia. - Pathology of male reproductive system. Congenital disorders and alteration of spermatogenesis, inflammation and neoplasia. - Pathology of endocrine system. Pathology of pituitary gland, adrenal glands and pancreatic islets. Pathology of thyroid glands, parathyroid glands, chemoreceptor organ - Pathology of the skin: general consideration. Microscopic examination of the skin. Congenital disorders. Chemical and physical causes of dermal lesions. Pathology of the skin: viral, bacterial, fungal, algal and parasitic skin diseases. Pathology of the skin: Immune mediated skin diseases. Miscellaneous skin disorders. Examples of cutaneous neoplasms. - Pathology of musculoskeletal system - bones. Responses to injury, types of bone diseases, bone tumors. Pathology of musculoskeletal system - muscle and joints. Response to injury, types articular and muscle diseases. - Pathology of nervous system – selected issues - Pathology of eye and ear - selected issues - Cytology of serosal cavities in cats – presentation of selected cases - Introduction to forensic pathology/Pathology of newborns. During practicals students perform diagnostic autopsies and learn to recognise pathological changes and correctly interpret found abnormalities. Students learn to collect cytopathological material, make smears, conduct microscopic evaluation of collected material and issue cytopathological diagnosis. Depending on external conditions that make it impossible to conduct classes in a planned form, it is allowed to change the didactic methods. 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.
Formal prerequisites and initial requirements:	anatomy, clinical anatomy, histology, physiology, physiopathology, immunology, microbiology. pathomorphology module 1, pathomorphology module 2. Student should have a theoretical and practical knowledge about subjects mentioned above Student is capable to work with light microscope

Learning effects		Course outcomes:	Learning outcomes relative to the course outcomes	Impact on the course outcomes*
Knowledge:	1	Student knows chosen aspects of systemic 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 animals and farm animals and how to write necropsy protocols.	B.W.4; B.W.8; B.W.15	3
	4	Student describes, explain and interpret alterations within particular organs, body systems and whole body during disease course	B.W.1; B.W.2; B.W.3 A.W.1; A.W.12	3 1
	5	Student describes and interpret causes and signs of diseases, describes and interpret anatomopathological lesions within internal organs and whole body	B.W.3	3
	6	Student knows safety rules obligatory during animals necropsy and during work in cytopathology laboratory	C.W.3	3
Skills:	1	Student is able to perform necropsy of animals and to write necropsy protocol	B.U.16	3
	2	Student is able to recognize basic pathologic processes during cytological examination	B.U.6; B.U.8	3
	3	Student is able to use medical current nomenclature as well as Latin language	C.U.1	3
	4	Student is able to collect cellular samples to cytological examination and correctly fix it and sent it 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
		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

Objectives of the module required to obtain learning effects:	The main goal of the course is to gain knowledge in field of pathomorphology of domestic animals, to learn methods of performing necropsy of various domestic animals and to achieve ability to correctly interpret the results of cytological examination. Student is aware of the necessity of constant education using scientific sources
Assessment methods:	Performance during necropsies, necropsy protocol, necropsy practical evaluation, cytological practical evaluation, 2 written tests, written exam. Written test based on knowledge achieved and recognition of cytological slides (to pass this test student has to know at least 70% of obligatory material). Written test – systemic pathology semester 6 – lectures semester 6 (to pass this test student has to know at least 70% of obligatory material). Final EXAM: Test focused on general and systemic pathology – 70 question with 3 possible answers (only one is correct). At least 70% of answers have to be correct to pass exam. Final note consists of note (grade) of 7th semester (30 % of final note) and note (grade) of final exam (70 % of final note). Point are convert into notes according to following table. No extra assessment methods are anticipated. In case of unforeseen, unusual circumstances mandatory remote teaching and remote assessment methods might be adopted.
Detail description of assessment methods; Formal documentation of learning outcome:	An active participation in classes are mandatory for all students, active participation in necropsy of animal, confirmed by necropsy protocol – at least one necropsy protocol has to be done by student and confirmed by teacher by record in student list. Microscopic observation of selected cytological slides under supervision by teacher is also obligatory. Learning outcomes are verified during colloquiums - two tests are scheduled during semester (two term of the every test, both test have the same form). - Systemic pathology semester 6 – written test. 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. - Clinical pathology test – written test. During practical part of the test student has 3 cytologic slides with pathological lesions, and have to correctly recognise at least 2 slides. If at least 2 slides are correctly recognized then 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 for 0 points, full answer is graded for 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: • 0-5 pts – 2,0 (failing grade) • 6 pts – 3,0 (passing grade) • 7 pts – 3,5 (passing plus grade) • 8 pts – 4,0 (good grade) • 8,5 pts. – 4,5 (good plus) • 9 pts – 5,0 (excellent grade) * 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. <u>The subject Pathomorphology ends with final written test including 70 questions (one choice test, short descriptive/open question, figures of pathological macroscopic and microscopic lesions) about general pathology, systemic pathology, histopathology and clinical pathology. Student receive printed form to write correct answer, 1 point for one correct answer. The final exam lasts for 70 minutes.</u> Final exam grade is based on the number of correct answers according to: • 0-48 correct answers – 2,0 (failing grade) – 0 point of final subject grade • 49-54 correct answers – 3,0 (passing grade) – 50 point of final subject grade • 55-59 correct answers - 3,5 (passing plus grade) – 55 point of final subject grade • 60-64 correct answers – 4,0 (good grade) – 60 point of final subject grade • 65-67 correct answers – 4,5 (good plus grade) – 65 point of final subject grade • 68-70 correct answers – 5,0 (excellent grade) – 70 point of final subject grade No extra assessment methods are anticipated. In case of unforeseen, unusual circumstances mandatory remote teaching and remote assessment methods might be adopted. Grades gained during general pathology written colloquium and written test on necropsy techniques – marks are written in student lists. 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.

Elements impelling final grade:	Attendance to the classes is mandatory, student can be absent on 20% of labs or according to the current academic regulations Average of positive grades from general pathology/histopathology colloquium and necropsy techniques test. Final grade of the subject. Final grade is based on the grades of particular semesters (10% of final grade for each semester grade) and final exam (70% of final grade). The final grade is recorded in eHMS
Teaching base:	Teaching facilities of the Division of Pathology, 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:	75 h
Total ECTS points, accumulated by students during contact learning:	8 ECTS