



SZKOŁA GŁÓWNA
GOSPODARSTWA
WIEJSKIEGO

Pathomorphology (1)
Educational subject description sheet

Basic information

Field of study Veterinary Medicine	Didactic cycle 2023/24	
Speciality -	Subject code WETFVMS_D.510.01698.23	
Organizational unit Faculty of Veterinary Medicine	Lecture languages english	
Study level long-cycle	Mandatory Obligatory subjects	
Study form full-time studies	Block Major subjects	
Education profile General academic	Disciplines Veterinary medicine	
Coordinator	Rafał Sapierzyński	
Teacher	Rafał Sapierzyński, Izabella Dolka, Katarzyna Kliczkowska-Klarowicz, Anna Rodo, Małgorzata Sobczak-Filipiak	
Period Semester 5	Examination Pass with grade	Number of ECTS points 8
	Activities and hours Lecture: 30 Laboratory exercises: 45	

Goals

Code	Goal
C1	to gain knowledge in field of pathomorphology of domestic animals
C2	to learn methods of performing an autopsy in various domestic animals
C3	to know indications and methods of collection of samples for cytopathological and histopathological examination
C4	to achieve ability to correctly interpret the results of histopathological and cytopathological examination
C5	to learn how to prepare cytopathological smears and to diagnose basic pathological changes during microscopic examination

Entry requirements

Animal anatomy 2, Topographical anatomy, Histology and embryology 2, Animal physiology 2, Immunology, Microbiology 2, Parasitology and invasiology 1

Subject's learning outcomes

Code	Outcomes in terms of	Effects	Examination methods
Knowledge - Student knows and understands:			
W1	theoretical knowledge in the field of general pathology of animals	B.W1, B.W2, B.W3, B.W4, B.W6	Written credit, Assessment of activity during classes
W2	perform autopsies of a companion animal and a farm animal.	B.W4	Written credit, Assessment of activity during classes
W3	disorders at the level of cell, tissue, organ, system and organism in the course of the disease.	B.W1	Written credit
W4	how to describes and interprets causes and symptoms, describes and interprets anatomopathological changes	B.W4	Written credit, Assessment of activity during classes
W5	the health and safety rules applicable during the autopsy of animals and work in the histopathological laboratory.	B.W4	Written credit, Assessment of activity during classes
Skills - Student can:			
U1	perform autopsies of animals.	B.U16, B.U2, B.U8	Written credit, Assessment of activity during classes
U2	recognize the basic pathological processes in histopathological examination.	B.U7	Written credit, Assessment of activity during classes
U3	collect tissue material for histopathological examination (sections of internal organs, pathological tissues removed during procedures, tissue bioptates) properly secure and properly send to the histopathological laboratory.	B.U6	Written credit, Assessment of activity during classes
Social competences - Student is ready to:			

Code	Outcomes in terms of	Effects	Examination methods
K1	use the practically acquired knowledge and acquired skills	KS.1, KS.4, KS.5	Written credit, Assessment of activity during classes

Study content

No.	Course content	Subject's learning outcomes	Activities
1.	<p>Students learn theoretical information about following subjects:</p> <ul style="list-style-type: none"> · Introduction to pathology. Definition and origin, branches of pathology. Basis of the cytopathology. Etiology of diseases. Molecular mechanisms of reversible and irreversible cell injury. · Necrosis. Apoptosis. Death. Postmortem changes. · Sublethal injury. Hyaline and amyloid degeneration. Pathology of connective tissue. Abnormal cornification. Fibrinoid changes. Degeneration. Imbalances in pigments metabolism. Imbalances in minerals metabolism. · Disorders of growth: atrophy, hypertrophy, hyperplasia, metaplasia, dysplasia. · Circulatory disturbances. Changes in blood volume, hemorrhage, edema, and shock. Thrombosis, embolism, infarct, vascular shunts, lymphatic blockage. · Inflammation. Origin and evolution of acute inflammation. Pathomorphology of acute inflammation. Chronic inflammation. Granulomatous inflammation. Regeneration and reparation. Wound healing. · Neoplasia. Carcinogens. Mechanisms of carcinogenesis. Oncogenes and oncogenic viruses. Tumour structure. Classification of neoplasms. Spread of neoplasms. Clinical effects of neoplasms. · Disorders of development - teratology. Causes, mechanisms and forms. <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>	W1, W2, W3, W4, W5, U1, U2, U3, K1	Lecture, Laboratory exercises

Course advanced

Activities	Methods of conducting classes
Lecture	Lecture

Activities	Methods of conducting classes
Laboratory exercises	Laboratory (experiment), learning by experiment

Activities	Examination method	Percentage
Lecture	Written credit	50%
Lecture	Assessment of activity during classes	20%
Laboratory exercises	Written credit	15%
Laboratory exercises	Assessment of activity during classes	15%

Activities	Credit conditions
Lecture	<p>1. Histopathology Colloquium comprises of two parts:</p> <p>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.</p> <p>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).</p> <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.</p> <p>2. Necropsy procedures and diagnostic necropsy colloquium - 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>Depending on external conditions that make it impossible to carry out the verification in a planned form, it is allowed to change the forms of verification of learning outcomes.</p>
Laboratory exercises	<p>1. Histopathology Colloquium comprises of two parts:</p> <p>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.</p> <p>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).</p> <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.</p> <p>2. Necropsy procedures and diagnostic necropsy colloquium - 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>Depending on external conditions that make it impossible to carry out the verification in a planned form, it is allowed to change the forms of verification of learning outcomes.</p>

Literature

Obligatory

1. Handouts - lectures - additional readings, histopathology (given by lecturer)
2. Necropsy for Veterinary Students. K. Kliczkowska-Klarowicz. SGGW, Warsaw 2017
3. Pathologic basis of veterinary disease. M. D. McGavin and J. F. Zachary. Mosby-Elsevier Ed.
4. Introduction to veterinary pathology. N. F. Cheville, Blackwell Publishing

Calculation of ECTS points

Activity form	Activity hours*
Lecture	30
Laboratory exercises	45
Preparation for the exam	160
Student workload	Hours 235
Number of ECTS points	ECTS 8

* hour means 45 minutes

Effects

Code	Content
KS.1	Absolwent jest gotów do wykazywania odpowiedzialności za podejmowane decyzje wobec ludzi, zwierząt i środowiska przyrodniczego
KS.4	Absolwent jest gotów do korzystania z obiektywnych źródeł informacji
KS.5	Absolwent jest gotów do formułowania wniosków z własnych pomiarów lub obserwacji
B.U2	Absolwent potrafi przeprowadzić wywiad lekarsko-weterynaryjny w celu uzyskania dokładnej informacji o pojedynczym zwierzęciu lub grupie zwierząt oraz jego lub ich środowisku bytowania
B.U6	Absolwent potrafi pobierać i zabezpieczać próbki do badań oraz wykonywać standardowe testy laboratoryjne, a także prawidłowo analizować i interpretować wyniki badań laboratoryjnych
B.U7	Absolwent potrafi stosować aparaturę diagnostyczną, w tym radiologiczną, ultrasonograficzną i endoskopową, zgodnie z jej przeznaczeniem i zasadami bezpieczeństwa dla zwierząt i ludzi oraz interpretować wyniki badań uzyskane po jej zastosowaniu
B.U8	Absolwent potrafi wdrażać właściwe procedury w przypadku stwierdzenia choroby podlegającej obowiązkowi zwalczania lub rejestracji
B.U16	Absolwent potrafi wykonać sekcję zwłok zwierzęcia wraz z opisem, pobrać próbki i zabezpieczyć je do transportu
B.W1	Absolwent zna i rozumie zaburzenia na poziomie komórki, tkanki, narządu, układu i organizmu w przebiegu choroby
B.W2	Absolwent zna i rozumie mechanizmy patologii narządowych i ustrojowych
B.W3	Absolwent zna i rozumie przyczyny i objawy zmian anatomopatologicznych, zasady leczenia i zapobiegania w poszczególnych jednostkach chorobowych
B.W4	Absolwent zna i rozumie zasady postępowania diagnostycznego, z uwzględnieniem diagnostyki różnicowej, oraz postępowania terapeutycznego
B.W6	Absolwent zna i rozumie sposób postępowania z danymi klinicznymi i wynikami badań laboratoryjnych i dodatkowych