Pathomorphology (3)
Educational subject description sheet

Basic information

Field of study Veterinary Medicine	**Didactic cycle** 2023/24
Speciality -	**Subject code** WETFVMS_D.540K.633d37e7120b1.23
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 7	**Examination** Exam **Activities and hours** Lecture: 30 Laboratory exercises: 30	**Number of ECTS points** 8

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 know indications and methods of collection of samples for cytopathological and histopathological examination
C5	to achieve ability to correctly interpret the results of histopathological and cytopathological examination
C6	to learn how to prepare cytopathological smears and to diagnose basic pathological changes during microscopic examination

Entry requirements

Student should have a theoretical and practical knowledge about anatomy, clinical anatomy, histology, physiology, physiopathology, immunology, microbiology, pathomorphology module 1, pathomorphology module 2.
Student is capable to work with light microscope.
Student can perform necropsy of domestic animals.

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.W15, B.W3, B.W4	Written exam, Assessment of activity during classes
W2	disorders at the level of cell, tissue, organ, system and organism in the course of the disease.	B.W1	Written exam, Assessment of activity during classes
W3	causes and symptoms, describes and interprets anatomopathological changes.	B.W2, B.W3	Written exam, Assessment of activity during classes
W4	how to collect, analyze and properly interpret clinical data and the results of laboratory and additional tests.	B.W4	Written exam, 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, B.W8	Written exam, Assessment of activity during classes
Skills – Student can:			
U1	perform autopsies of animals.	B.U16, B.U6, B.U8	Written exam, Assessment of activity during classes
U2	recognize the basic pathological processes in histopathological examination.	B.U7	Written exam, 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 exam, Assessment of activity during classes
Social competences – Student is ready to:			
K1	use the practically acquired knowledge and acquired skills.	KS.1, KS.10, KS.11, KS.2, KS.4, KS.5, KS.6, KS.8, KS.9	Written exam, Assessment of activity during classes

Study content

No.	Course content	Subject's learning outcomes	Activities

1.	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.	W1, W2, W3, W4, W5, U1, U2, U3, K1	Lecture, Laboratory exercises

Course advanced

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

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

Activities	Credit conditions
Lecture	1. Cytopathology – written test based on knowledge achieved and recognition of cytological slides - 2 of 3 cytologic slides have to be recognised correctly, then 3 open question about cytopathology (to pass this test student has to know at least 70% of obligatory material). 2. Necropsy procedures and diagnostic necropsy – student has to perform necropsy according to necropsy procedures and is capable to recognise pathologic changes present in the examined cadaver, moreover written test with 3 open question about lectures material from semester 6 (to pass this test student has to know at least 70% of obligatory material). Three questions, each of the questions can be assessed on a scale of 0-3 points, a total of 9 points can be obtained. • 0-5 points – unsatisfactory (2,0) • 6 points – satisfactory (3,0) • 7 points – satisfactory plus (3,5) • 8 points – good (4,0) • 9 points – very good (5,0) The final grade of the 7th semester (module 3 patomporphology) is the average of the grades from the two above passed colloquia. Failure to pass at least one colloquium in 2 dates results in FAILURE OF THE SEMESTER. RULES FOR PASSING THE COURSE OF PATHOMORPHOLOGY (module 3) To pass the course pathomorphology students must: • obtain a practical pass for the necropsy of animals during semester 7, • get a positive notes from both colloqia of 7th semester, • provide signed autopsy protocols of animals. To pass the pathomorphology module 3 course, it is necessary to obtain a positive grades from the final exam and from semester 7 classes. The final grade takes into account both the grade passing semester 7 and the grade from the final examination according to the rules set out below. The course ends with a written exam, which includes 70 questions (single-choice test questions; short open-ended questions; figures of macroscopic changes, figures of microscopic changes), including questions on detailed pathology, general pathology and histopathology. Students receive a question card with places to answer. The exam lasts 70 minutes. MARKS FROM THE FINAL EXAM (70% OF THE FINAL GRADE) • 0-49 questions - INSUFFICIENT (2,0) – 0 points of final grade • 50-54 questions - SUFFICIENT (3,0) – 50 points final grade • 55-59 questions - SUFFICIENT PLUS (3,5) – 55 points of final grade • 60-64 questions - GOOD (4,0) – 60 points final grade • 65-67 questions - GOOD PLUS (4,5) – 65 points of final grade • 68-70 questions – VERY GOOD 5,0) - 70 points of final grade Grades from the 7th semester classes are converted into points , according to the following score: GRADES FOR PASSING classes (30% OF THE FINAL GRADE) • INSUFFICIENT (2,0) – 0 points of the final grade • SUFFICIENT (3,0)– 20 points final grade • SUFFICIENT PLUS (3,5) – 22 points. final grade • GOOD (4,0) – 25 points final grade • GOOD PLUS (4,5) – 27 points final grade • VERY GOOD (5,0) – 30 points of final grade THE FINAL GRADE IS DETERMINED BY THE SUM OF THE POINTS OBTAINED AT THE END OF SEMESTER 7 AND THE FINAL EXAM, ACCORDING TO THE FOLLOWING SCORING • 0- 69 points - INSUFFICIENT (2,0) • 70-75 points - SUFFICIENT (3,0) • 76-81 points - SUFFICIENT PLUS (3,5) • 82-87 pts - GOOD (4,0) • 88-93 pts - GOOD PLUS (4,5) • 94-100 points – VERY GOOD (5,0) Depending on external conditions that prevent the planned form of verification, it is allowed to change the forms of assessment of learning outcomes.

Activities	Credit conditions
Laboratory exercises	1. Cytopathology – written test based on knowledge achieved and recognition of cytological slides - 2 of 3 cytologic slides have to be recognised correctly, then 3 open question about cytopathology (to pass this test student has to know at least 70% of obligatory material). 2. Necropsy procedures and diagnostic necropsy – student has to perform necropsy according to necropsy procedures and is capable to recognise pathologic changes present in the examined cadaver, moreover written test with 3 open question about lectures material from semester 6 (to pass this test student has to know at least 70% of obligatory material). Three questions, each of the questions can be assessed on a scale of 0-3 points, a total of 9 points can be obtained. • 0-5 points – unsatisfactory (2,0) • 6 points – satisfactory (3,0) • 7 points – satisfactory plus (3,5) • 8 points – good (4,0) • 9 points – very good (5,0) The final grade of the 7th semester is the average of the grades from the two above passed colloquia. Failure to pass at least one colloquium in 2 dates results in FAILURE OF THE SEMESTER. RULES FOR PASSING THE COURSE OF PATHOMORPHOLOGY (Module 3) To pass the course pathomorphology module 3 students must: • obtain a practical pass for the necropsy of animals during semester 7, • get a positive notes from both colloqia of 7th semester, • provide signed autopsy protocols of animals. To pass the pathomorphology module 3 course, it is necessary to obtain a positive grades from the final exam and from semester 7 classes. The final grade takes into account both the grade passing semester 7 and the grade from the final examination according to the rules set out below. The course ends with a written exam, which includes 70 questions (single-choice test questions; short open-ended questions; figures of macroscopic changes, figures of microscopic changes), including questions on detailed pathology, general pathology and histopathology. Students receive a question card with places to answer. The exam lasts 70 minutes. MARKS FROM THE FINAL EXAM (70% OF THE FINAL GRADE) • 0-49 questions - INSUFFICIENT (2,0) – 0 points of final grade • 50-54 questions - SUFFICIENT (3,0) – 50 points final grade • 55-59 questions - SUFFICIENT PLUS (3,5) – 55 points of final grade • 60-64 questions - GOOD (4,0) – 60 points final grade • 65-67 questions - GOOD PLUS (4,5) – 65 points of final grade • 68-70 questions – VERY GOOD 5,0) - 70 points of final grade Grades from the 7th semester classes are converted into points , according to the following score: GRADES FOR PASSING classes (30% OF THE FINAL GRADE) • INSUFFICIENT (2,0) – 0 points of the final grade • SUFFICIENT (3,0)– 20 points final grade • SUFFICIENT PLUS (3,5) – 22 points. final grade • GOOD (4,0) – 25 points final grade • GOOD PLUS (4,5) – 27 points final grade • VERY GOOD (5,0) – 30 points of final grade THE FINAL GRADE IS DETERMINED BY THE SUM OF THE POINTS OBTAINED AT THE END OF SEMESTER 7 AND THE FINAL EXAM, ACCORDING TO THE FOLLOWING SCORING • 0- 69 points - INSUFFICIENT (2,0) • 70-75 points - SUFFICIENT (3,0) • 76-81 points - SUFFICIENT PLUS (3,5) • 82-87 pts - GOOD (4,0) • 88-93 pts - GOOD PLUS (4,5) • 94-100 points – VERY GOOD (5,0) Depending on external conditions that prevent the planned form of verification, it is allowed to change the forms of assessment of learning outcomes.

Literature

Obligatory

1. Pathologic basis of veterinary disease. M. D. McGavin and J. F. Zachary. Mosby-Elsevier Ed.
2. Introduction to veterinary pathology. N. F. Cheville, Blackwell Publishing
3. Necropsy Techniques for Veterinary Students. Kliczkowska-Klarowicz K., SGGW, Warszawa 2016.
4. Lecture materials provided by the lecturer

Calculation of ECTS points

Activity form	Activity hours*
Lecture	30
Laboratory exercises	30
Preparation for the exam	160
Student workload	**Hours** 220
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.2	Absolwent jest gotów do prezentowania postawy zgodnej z zasadami etycznymi i podejmowania działań w oparciu o kodeks etyki w praktyce zawodowej oraz do wykazywania tolerancji dla postaw i zachowań wynikających z odmiennych uwarunkowań społecznych i kulturowych
KS.4	Absolwent jest gotów do korzystania z obiektywnych źródeł informacji
KS.5	Absolwent jest gotów do formułowania wniosków z własnych pomiarów lub obserwacji
KS.6	Absolwent jest gotów do formułowania opinii dotyczących różnych aspektów działalności zawodowej
KS.8	Absolwent jest gotów do pogłębiania wiedzy i doskonalenia umiejętności
KS.9	Absolwent jest gotów do komunikowania się ze współpracownikami i dzielenia się wiedzą
KS.10	Absolwent jest gotów do działania w warunkach niepewności i stresu
KS.11	Absolwent jest gotów do współpracy z przedstawicielami innych zawodów w zakresie ochrony zdrowia publicznego
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.W8	Absolwent zna i rozumie sposób postępowania w przypadku podejrzenia lub stwierdzenia chorób podlegających obowiązkowi zwalczania lub rejestracji
B.W15	Absolwent zna i rozumie sposoby zagospodarowywania i utylizacji produktów ubocznych i odpadów związanych z produkcją zwierzęcą