

**Cytological and histopathological evaluation of fluids and tissues****ECTS: 2.00****SUBJECT MATTER CONTENT****LECTURE**

The tasks and the importance of clinical pathology. Cytological diagnostic methods and the interpretation of the results in terms of diagnosis of the veterinary diseases and assessment of treatment efficacy. The use of cytology in the diagnosis of the veterinary internal diseases, assessment of the effectiveness of surgical procedures, oncological diagnosis, diagnosis of the inflammatory diseases, diagnosis of the selected infectious diseases. Indications and methods of internal organs biopsy. Sampling and handling with of the collected biopsy sample. Sampling and handling with of the collected biopsy sample, incl. viral diagnostics. Cytological and histopathological diagnosis of diseases of the skin; the pathology of the skin and adnexa. Evaluation of the samples collected by fine needle aspiration biopsy, core needle aspiration biopsy and surgical biopsy. WHO classification of cutaneous tumors in domestic animals. Cytological and histopathological diagnosis of the diseases of the lymphatic and hematopoietic tissues; WHO oncological classification. Cytological and histopathological evaluation of the pleural, peritoneal, synovial and cerebrospinal fluid. Cytological and histopathological diagnosis of diseases of the respiratory system. Bronchoscopy - indications, evaluation of the collected samples, diagnosing. WHO classification of tumors of the respiratory, nervous and skeletal system of the domestic animals. Cytological and histopathological diagnosis of diseases of the digestive system. Liver biopsy, endoscopy of the GI tract: indications, evaluation of the collected samples, diagnosing both cytological and histopathological. WHO classification of tumors of the digestive system of domestic animals. Cytological and histopathological diagnosis of diseases of the urinary system, male and female reproductive system and mammary gland. Kidney biopsy - indications, evaluation of the collected samples, diagnosing. WHO classification of tumors of these systems.

CLASSES

Cytological and histopathological sampling methods, medical and laboratory instruments necessary for sampling, staining, equipment of the pathological laboratory. Fixing samples, preparing samples for staining, staining techniques. Practical preparation of the ascites fluid samples, staining methods, cytological evaluation. Confirming the diagnosis (i.e. inflammation) by other methods. Usefulness of fine needle aspiration biopsy in determining hyperplasia, metaplasia, dysplasia and neoplasia. Verification of the results. Critical analysis of the results, eliminating false positive and false negative results. Immunocytochemistry in diagnosis. Cytological diagnosis of inflammatory lesions, non-inflammatory and neoplastic diseases of the skin and subcutaneous tissue. Methods of sampling and staining techniques. Performing the fine needle aspiration biopsy and core needle biopsy. Preparation, staining and scanning slides. Interpretation of the results. Cytodiagnostics of lymphomas and other neoplastic and non-neoplastic diseases of the lymph nodes. Cytodiagnostics of leukemias. Cytological fixation and staining techniques. Performing of fine needle aspiration and core needle biopsy. Bone marrow biopsy. Preparation, staining and scanning slides. Interpretation of the results. Cytology of pleural, peritoneal, synovial, cerebrospinal fluid. Cytological diagnosis of lung diseases. Performing the cerebrospinal, pleural, peritoneal, synovial fluid sampling. Bronchoscopy. Preparation, staining and scanning slides. Interpretation of the results. Cytological diagnosis of gastrointestinal diseases. Liver biopsy. Cytology of the GI mucosa. Staining methods. Preparation, staining and scanning slides. Interpretation of the

Legal acts specifying learning outcomes:**682/2020****Disciplines:** Veterinary science**Status of the course:** Fakultatywny**Group of courses:** B - przedmioty kierunkowe**Code:** ISCED 0841**Field of study:** Veterinary Medicine**Scope of education:****Profile of education:** General academic**Form of studies:** full-time**Level of studies:** uniform master's studies**Year/semester:** 5/9**Types of classes:** Lecture, Classes**Number of hours in****semester:** Lecture: 10.00, Classes: 20.00**Language of instruction:** Polish**Introductory subject:**

Pathomorphology

Prerequisites: pathomorphology**Name of the organisational unit****conducting the course:** Katedra

Anatomii Patologicznej

Person responsible for the**realization of the course:** dr hab. wet.

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Additional remarks:

results. Cytological diagnosis of urinary, reproductive tract and mammary gland diseases. Sampling methods. Preparation, staining and scanning slides. Interpretation of the results.

TEACHING OBJECTIVE

The aim of the training is to acquaint students with the methods of collecting biological material (various organs and tissues) for cytology and histopathology, acquisition of skills essential in preparation cytological and histological samples, including staining techniques. The student acquires the ability to recognize basic cytological and histological changes in the animal organs and tissues, interpret and describe the changes and formulating the final morphological diagnosis. Classes and lectures prepare the student for independent preparation, staining, describing and interpreting of the cytological samples, what will be crucial in the future veterinary practice.

DESCRIPTION OF THE LEARNING OUTCOMES OF THE COURSE IN RELATION TO THE DESCRIPTION OF THE CHARACTERISTICS OF THE SECOND LEVEL LEARNING OUTCOMES FOR QUALIFICATIONS AT LEVELS 6-8 OF THE POLISH QUALIFICATION FRAMEWORK IN RELATION TO THE SCIENTIFIC DISCIPLINES AND THE EFFECTS FOR FIELDS OF STUDY:

Symbols for outcomes related to the discipline:

R/WA_P7S+++

Symbols for outcomes related to the field of study:

B.U6. +, B.W4. +, A.U21. +, A.W20. +, B.W3. +, B.W2. +, K.4.+, B.W1. +, K.9.+, B.W6. +, A.W12. +, A.U12. +, K.5+, A.U22. +, K.8.+, C.U2. +, A.U23. +

LEARNING OUTCOMES:

Knowledge:

W1 – After completing the course, the student knows the basics of clinical pathology, allowing him to perform cytological examination by himself. He knows how to define and interpret morphological changes on the basis of the cellularity of smears and morphology of cells. Has extensive knowledge of cancer pathomorphology and their biological activity in animals.

Skills:

U1 – The student is able to perform cytological and histopathological examination by himself, in the aspect of clinical pathology. He can (by himself) select the appropriate cytological methods depending on the clinical case. He can describe the cytological smears with appropriate interpretation, and direct further diagnostics (including histopathological).

Social competence:

K1 – The student is able to formulate conclusions based on his own observations and using objective sources of information. Understands the necessity of continuous education and broadening of knowledge. Communicates clearly with colleagues from various fields of veterinary medicine (surgeons, internists and others). He can share his knowledge with colleagues.

TEACHING FORMS AND METHODS:

Lecture(W1;U1;K1;):Informative lecture with multimedial presentation

Classes(W1;U1;K1;):Practical laboratory classes. Manual staining of cytological smears with their subsequent evaluation. Assessment of cytological preparations, sorted thematically (by organ system and type of the disease) with discussion by the teacher, using a microscope camera and a large screen. Self-assessment of cytological preparations.

FORM AND CONDITIONS OF VERIFYING LEARNING OUTCOMES:

Lecture (Evaluation of the work and cooperation in the group) - Credit based on the student's activity during lectures, as well as on the assesment of work and cooperation with the group. The grading of grades is based on the score thresholds described in the faculty

procedure "Principles of grading students". In the event of a top-down suspension of classroom classes and the need for distance learning, the methods of verifying the achievement of learning outcomes declared in the syllabus may change in a manner appropriate to the situation. -

Classes (Evaluation of the work and cooperation in the group) - Credit based on the student's activity during laboratory classes, as well as on the assesment of work and cooperation with the group. The grading of grades is based on the score thresholds described in the faculty procedure "Principles of grading students". In the event of a top-down suspension of classroom classes and the need for distance learning, the methods of verifying the achievement of learning outcomes declared in the syllabus may change in a manner appropriate to the situation. -

BASIC LITERATURE:

1. R.B. Colvin, *Diagnostic Pathology: Kidney Diseases*, Wyd. Amirsys, R. 2011, s.
2. E. Villiers, J. Ristic, *BSAVA Manual of Canine and Feline Clinical Pathology, 3rd ed.*, Wyd. BSAVA, R. 2016, s.
3. J.F. Zachary, M.D.McGavin, *Pathologic Basis of Veterinary Disease Expert Consult 6th ed.*, Wyd. Mosby, R. 2016, s.
4. J. Rothuizen et al., *WSAVA Standards for Histological and Clinical Diagnosis of Canine and Feline Liver Diseases*, Wyd. Elsevier, R. 2006, s.
5. J.W. Harvey, *Atlas of Veterinary Hematology: Blood and Bone Marrow of Domestic Animals*, Wyd. Saunders, R. 2001, s.
6. R.E. Raskin, D. J. Meyer, *Cytologia psa i kota.*, Wyd. Edra Urban and Partner, R. 2013, s.
7. R.L. Cowell, R.D. Tyler, J.H. Meinkoth, D.B. De Nicola, *Diagnostic Cytology and Hematology of the Dog and Cat*, Wyd. Mosby, R. 2008, s.
8. R.E. Raskin, D. J. Meyer, *Canine and Feline Cytology. A Color Atlas and Interpretation Guide 2nd. ed.*, Wyd. Saunders Elsevier, R. 2010, s.
9. A.G. Burton, *Clinical atlas of small animal cytology.*, Wyd. Wiley Blackwell, R. 2017, s.
10. V.E. Valli, *Veterinary Comparative Hematopathology*, Wyd. Blackwell, R. 2007, s.

SUPPLEMENTARY LITERATURE:

1. A. Porwit, J. McCullough, W.N. Erber, *Blood and Bone marrow Pathology*, Wyd. Churchill Livingstone, R. 2011, s.
2. A. Porwit, J. McCullough, W.N. Erber, *Blood and Bone marrow Pathology*, Wyd. Churchill Livingstone, R. 2011, s.
3. S.J. Withrow, *Withrow and MacEwens's Small Animal Clinical Oncology*, Wyd. Elsevier, R. 2012, s.
4. S.A. Geller, L.M. Petrovic, *Biopsy Interpretation of the Liver*, Wyd. Lippincott Williams Wilkins, R. 2009, s.
5. J.D. Bancroft, M. Gamble, *Theory and Practice of Histological Techniques*, Wyd. Churchill Livingstone, R. 2007, s.
6. I. Otrocka-Domagala, K. Paździor-Czapula, Gesek, T. Rotkiewicz, *Atlas cytodiagnostyki zwierzqt.*, Wyd. BUK, Białystok, R. 2014, s.