

UNIVERSITY OF ZAGREB  
 FACULTY OF VETERINARY MEDICINE  
 Heinzelova 55  
 Tel. 01/  
 Division:  
 Department / Clinic: Department of Veterinary Pathology  
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 Register no.:  
 File no.:  
 Zagreb, January 15, 2019.



79125	REPUBLIKA HRVATSKA	
Veterinarski fakultet u Zagrebu		
Primljeno:	15.01.2019	
Klasifikacijska oznaka	Org. jed.	
602-04/19-23/11	251-61-32;251-61-11;	
Uredžbeni broj	Prilozi	Vrijednost
251-61-11-19-01	0	-

## COURSE SYLLABUS

Course name: SPECIAL VETERINARY PATHOLOGY

Academic year 2018-19

Course leader: Andrea Gudan Kurilj, DVM, PhD, DECVP, Associate Professor

Teachers: Željko Grabarević, DVM, PhD, Full Professor; Marko Hohšteter, DVM, PhD, Associate Professor

Associate teachers: Doroteja Huber, DVM, PhD; Lidija Medven Zagradišnik, DVM, Assistant, Ivana Mihoković, DVM

First day of classes: 25.2.2019.

Last day of classes: 16.5.2019.

**Timetable for LECTURES academic year 2018-2019**

<b>LECTURES</b>				
<b>Date</b>	<b>Methodological unit</b>	<b>Teacher</b>	<b>Location / time</b>	<b>Literature</b>
25.2.2019.	Pathology of Alimentary System	Prof. Željko Grabarević	Department of Veterinary Pathology/ 8-10 h	<ol style="list-style-type: none"> <li>1. J. F. Zachary: Pathologic Basis of Disease, 6th edition, Elsevier, Philadelphia, 2017.</li> <li>2. V. Kumar, Abul K. Abbas, N. Fausto: Robbins and Cotran Pathologic Basis of Disease, 9th. Elsevier Saunders, Philadelphia, 2015.</li> <li>3. Notes and presentations provided by lecturers.</li> </ol>
26.2.2019.	Pathology of Alimentary System	Prof. Željko Grabarević	Department of Veterinary Pathology/ 8-10 h	
27.2.2019.	Pathology of Alimentary System	Prof. Željko Grabarević	Department of Veterinary Pathology/ 10-12 h	
28.2.2019.	Pathology of Alimentary System	Prof. Željko Grabarević	Department of Veterinary Pathology/ 10-12 h	
1.3.2019.	Pathology of Liver and Pancreas	Prof. Željko Grabarević	Department of Veterinary Pathology/ 8-10 h	
4.3.2019.	Pathology of Respiratory System	Prof. Željko Grabarević	Department of Veterinary Pathology/ 10-12 h	
6.3.2019.	Pathology of Respiratory System	Prof. Željko Grabarević	Department of Veterinary Pathology/ 12-14 h	
8.3.2019.	Pathology of Respiratory System	Prof. Željko Grabarević	Department of Veterinary Pathology/ 8-10 h	
11.3.2019.	Pathology of Endocrine System	Prof. Željko Grabarević	Department of Veterinary Pathology/ 8-10 h	
13.3.2019.	Pathology of Endocrine System	Prof. Željko Grabarević	Department of Veterinary Pathology/ 12-14 h	
15.3.2019.	Pathology of Urinary System	Assoc. Prof. Andrea Gudan Kurilj	Department of Veterinary Pathology/ 8-10 h	
18.3.2019.	Pathology of Urinary System	Assoc. Prof. Andrea Gudan Kurilj	Department of Veterinary Pathology/ 12-14 h	
20.3.2019.	Pathology of Urinary System	Assoc. Prof. Andrea Gudan Kurilj	Department of Veterinary Pathology/ 8-10 h	
22.3.2019.	Pathology of Cardiovascular System	Assoc. Prof. Andrea Gudan Kurilj	Department of Veterinary Pathology/ 10-12 h	
25.3.2019.	Pathology of Cardiovascular	Assoc. Prof. Andrea	Department of Veterinary	

	System	Gudan Kurilj	Pathology/ 8-10 h	
27.3.2019.	Pathology of Skin	Assoc. Prof. Andrea Gudan Kurilj	Department of Veterinary Pathology/ 14-16 h	
28.3.2019.	Pathology of Skin	Assoc. Prof. Andrea Gudan Kurilj	Department of Veterinary Pathology/ 10-12 h	
1.4.2019.	Pathology of Skeletal Muscle	Assoc. Prof. Andrea Gudan Kurilj	Department of Veterinary Pathology/ 12-14 h	
3.4.2019.	Pathology of Bones	Assoc. Prof. Andrea Gudan Kurilj	Department of Veterinary Pathology/ 8-10 h	
5.4.2019.	Eye Pathology	Assoc. Prof. Andrea Gudan Kurilj	Department of Veterinary Pathology/ 10-12 h	
9.4.2019.	Pathology of Nervous System	Assoc. Prof. Marko Hohšteter	Department of Veterinary Pathology/ 8-10 h	
12.4.2019.	Pathology of Nervous System	Assoc. Prof. Marko Hohšteter	Department of Veterinary Pathology/ 10-12 h	
17.4.2019.	Pathology of Nervous System	Assoc. Prof. Marko Hohšteter	Department of Veterinary Pathology/ 8-10 h	
29.4.2019.	Pathology of Nervous System	Assoc. Prof. Marko Hohšteter	Department of Veterinary Pathology/ 10-12 h	
30.4.2019.	Pathology of Hematopoietic System	Assoc. Prof. Marko Hohšteter	Department of Veterinary Pathology/ 8-10 h	
2.5.2019.	Pathology of Lymph Nodes	Assoc. Prof. Marko Hohšteter	Department of Veterinary Pathology/ 10-12 h	
3.5.2019.	Pathology of Spleen	Assoc. Prof. Marko Hohšteter	Department of Veterinary Pathology/ 10-12 h	
7.5.2019.	Pathology of Female Reproductive System	Assoc. Prof. Marko Hohšteter	Department of Veterinary Pathology/ 10-12 h	
10.5.2019.	Pathology of Female Reproductive System	Assoc. Prof. Marko Hohšteter	Department of Veterinary Pathology/ 8-10 h	
15.5.2019.	Pathology of Male Reproductive System	Assoc. Prof. Marko Hohšteter	Department of Veterinary Pathology/ 8-10 h	

Timetable for SEMINARS academic year 2018-2019

SEMINARS					
Date	Methodological unit	Teacher	Group	Location / time	Literature

## Timetable for PRACTICALS academic year 2018-2019

PRACTICALS						
Date	Methodological unit	Teacher	Type of practical	Group	Location / time	Literature
5.3.2019.	Necropsy technique: repetition	Assoc. Prof. Andrea Gudan Kurilj	Clinical practicals	All	Necropsy hall/ 12-16 h	J. F. Zachary: Pathologic Basis of Disease, 6th edition, Elsevier, Philadelphia, 2017.  Grabarević, Željko i Sabočanec, Ruža (ur.): Osnove razudbe domaćih životinja. Medicinska naklada, Zagreb, 2016.  Notes provided by lecturers.
7.3.2019.	Introduction to writing of necropsy report.	Assoc. Prof. Marko Hohšteter	Clinical practicals	All	Necropsy hall/ 10-14 h	
12.3.2019.	Necropsy technique and recognition of pathological changes; writing of necropsy report.	Doroteja Huber, DVM, PhD, Assistant	Clinical practicals	All	Necropsy hall/ 12-16 h	
14.3.2019.	Necropsy technique and recognition of pathological changes; writing of necropsy report.	Lidija Medven Zagradišnik, DVM, Assistant	Clinical practicals	All	Necropsy hall/ 8-12 h	
19.3.2019.	Necropsy technique and recognition of pathological changes; writing of necropsy report.	Full Prof. Željko Grabarević	Clinical practicals	All	Necropsy hall/ 14-18 h	
21.3.2019.	Necropsy technique and recognition of pathological changes; writing of necropsy report.	Ivana Mihoković, DVM, Assistant	Clinical practicals	All	Necropsy hall/ 12-16 h	
26.3.2019.	Necropsy technique and recognition of pathological changes; writing of necropsy report.	Ivana Mihoković, DVM, Assistant	Clinical practicals	All	Necropsy hall/ 8-12 h	

29.3.2019.	<p>Necropsy technique/ <b>Histopathology I</b> Introduction: slides preparation, staining techniques. Slides: (2) Liver: hepatocellular steatosis (lipidosis). (14) Liver (dog): bilirubin retention/cholestasis. (4) Skeletal muscle (horse): coagulative necrosis.</p>	<p>Necropsy/ Full Prof. Željko Grabarević</p> <hr/> <p>Histopathology/ Assoc. Prof. Marko Hohšteter</p>	<p>Clinical practicals</p> <hr/> <p>Laboratory practicals</p>	All	<p>Necropsy hall/ 8-10 h</p> <p>Department of VP 10-12 h</p>	
2.4.2019.	<p><b>Histopathology II</b> Slides: (46) Liver (pig): Hepatitis, interstitial, chronic, eosinophilic and fibrous (parasitic hepatitis). (45) Liver (chinchilla): Hepatitis, suppurative and necrotizing (milliar). (Salmonellosis) (44) Liver (horse): postnecrotic cirrhosis. (47) Liver (dog): zonal necrosis. <b>Histopathology III</b> Slides: (18) Lung (horse):</p>	<p>Lidija Medven Zagradišnik, DVM, Assistant</p>	<p>Laboratory practicals</p>	All	<p>Department of Veterinary Pathology/ 14-18 h</p>	

	<p>multiple arterial thrombi.  (50) Valve (dog): Valvular (verrucous) endocarditis, chronic.  (51) Valve (pig): Endocarditis, thrombotic, septic.  (55) Spleen (pig): haemorrhagic infarction.</p>					
8.4.2019.	<p><b>Histopathology IV</b>  Slides:  (58) Myocardium (horse): Embolic myocarditis.  (59) Myocardium (pig): Myocarditis, necrotizing, lymphocytic and histiocytic, multifocal.  (93) Liver (monkey): disseminated hepatic tuberculosis.  (100) Skin (pig): Citaneous Actinomycosis.  <b>Histopathology V</b>  Slides:  (30) Skin (dog): Nodular sebaceous hyperplasia.  (32) Skin (dog): Squamous cell carcinoma.</p>	<p>Assoc. Prof.  Andrea Gudan  Kurilj</p>	<p>Laboratory practicals</p>	<p>All</p>	<p>Department of Veterinary Pathology / 8-12 h</p>	

	(28) Skin (dog): Papilloma. (33) Testis (dog): Seminoma.				
11.4.2019.	<b>Histopathology VI</b> Slides: (34) Lymph node (dog): Lymphoma. (35) Skin (dog): Mast cell tumor HE & Toluidin. (36) Mammary gland (dog): Adenocarcinoma (tubulopapillar) (37) Mammary gland (dog): Benign mixed tumor <b>Histopathology VII</b> Slides: (60) Lung (horse): Pneumonia, fibrinous and necrotizing. (62) Lung (horse): Bronchopneumonia, embolic and suppurative. (63) Lung (pig): Porcine Enzootic Pneumonia	Lidija Medven Zagradišnik, DVM, Assistant	Laboratory practicals	All	Department of Veterinary Pathology / 8-12 h
15.4.2019.	<b>Histopathology VIII</b> Slides: (42) Stomach (dog): Stomach ulcer. (43) Small intestine	Doroteja Huber, DVM, PhD, Assistant	Laboratory practicals	All	Department of Veterinary Pathology / 8-12 h



	(dog): Parvovirus. (81) Kidney (cat): FIP <b>Histopathology IX</b> Slides: (105) Lung, urinary bladder (dog): Distemper (104) Brain (dog): Rabies					
18.4.2019.	<b>Histopathology X</b> Slides: (77) Mammary gland (cow): Mastitis, suppurative. (76) Uterus (dog): Endometritis, chronic, suppurative (pyometra). (74) Kidney (horse): Nephritis glomerulointerstitialis, chronic. <b>Histopathology XI</b> Slides: (48) Liver (dog): Contagious Canine Hepatitis. (53) Lymph node (pig): Lymphadenitis, haemorrhagic, acute. (54) Lymph node (pig): Suppurative lymphadenitis.	Lidija Medven Zagradišnik, DVM, Assistant	Laboratory practicals	All	Department of Veterinary Pathology/ 8-12 h	

30.4.2019.	<b>Histopathology XII</b> Slides: (67) Lung (cat): Verminous Pneumonia. (68) Liver (rabbit): Coccidiosis (69) Liver (hyrax): Toxoplasmosis. (70) Myocard (sheep): Sarcocystosis. <b>Histopathology XIII</b> Slides: (80) Kidney, tongue (dog): Uremia.	Doroteja Huber, DVM, PhD, Assistant	Laboratory practicals	All	Department of Veterinary Pathology / 10-14 h	
2.5.2019.	<b>Histopathology XIV and XV</b> Slides - all: repetition and colloquium	Doroteja Huber, DVM, PhD, Assistant	Laboratory practicals	All	Department of Veterinary Pathology/ 12-16 h	
6.5.2019.	<b>Konverzatorij (case study analysis)</b> Presentations of necropsy cases with active participation of students in analysis and discussion	Assoc. Prof. Andrea Gudan Kurilj	Laboratory practicals	All	Department of Veterinary Pathology/ 8-11 h	
9.5.2019.	<b>Konverzatorij</b> Presentations of necropsy cases with active participation of students in analysis and discussion	Assoc. Prof. Marko Hohšteter	Laboratory practicals	All	Department of Veterinary Pathology/ 8-11 h	
13.5.2019.	<b>Konverzatorij</b> Presentations of necropsy cases with	Full Prof. Željko Grabarević	Laboratory practicals	All	Department of Veterinary Pathology/ 8-11 h	

	students in analysis and discussion					
14.5.2019.	<b>Konverzatorij</b> Presentations of necropsy cases with active participation of students in analysis and discussion	Doroteja Huber, DVM, PhD, Assistant	Laboratory practicals	All	Department of Veterinary Pathology/ 10-13 h	
16.5.2019.	<b>Konverzatorij</b> Presentations of necropsy cases with active participation of students in analysis and discussion	Lidija Medven Zagredišnik, DVM, Assistant	Laboratory practicals	All	Department of Veterinary Pathology/ 10-13 h	

STUDENT OBLIGATIONS

Lecture attendance	The total number of lectures include 60 hours. During sixth semester student must be present on at least 30 hours (50%) of lectures to get minimal 3 points (each lecture hour is calculated as 0.1 points). A student can get a maximum of 6 points for this element.
Seminars attendance	
Practicals attendance	The total number of practicals include 75 hours. During the sixth semester student must be present on at least 52 hours of practicals to get a minimum of 8 points (each hour of practical is calculated as 0.16 points). A student can get a maximum of 12 points for this element.
Active participation in seminars and practicals	In this element, student must achieve a minimum of 5 points, and can achieve a maximum of 10 points. Each student has the obligation to perform at least two <b>necropsies</b> during semester, where success is scored as follows: 0-5 points (0 points = did not perform necropsy nor wrote necropsy report; 1 point = performed necropsy but but did not wrote necropsy report ; 2 points = performed necropsy, and wrote necropsy report; 3 points = performed two necropsies, and wrote necropsy report; 4 points = performed two necropsies, and wrote necropsy report and showed very good knowledge of theory and technique. <b>Histopathology</b> : 0 points – student has not drawn majority of given slides; 1 point – student drawn the majority of given slides; 2 points – student drawn all given slides and poorly described slides; 3 points - student drawn all given slides and correctly described slides; 4 points - student nicely drawn all given slides and correctly described slides. <b>Konverzatorij (Case study analysis)</b> : 0 points - student has not learned given program unit; 1 point - student has learned given program unit; 2 points - student has learned given program unit and actively participated in discussion. The range of 5 to 10 points student achieves by combining ie. adding values earned by necropsies, histopathology and konverzatorij.
Final exam	Minimal conditions for passing the first, second, third and fourth evaluation elements are all summed up and they are worth 36 points all together. In order to take the final exam a student must gain the 36 points. The final exam starts with the short analysis from the first four activities of continuous knowledge evaluation. In order to pass the final exam, a student must achieve a minimum of 24 points. The maximum number of points on the final exam is 40. Note: A student

	on the final exam should know the material of the colloquiums, and he/ she can be asked questions from colloquiums.
Examination requirements	Student requirements are defined in the Regulations on the Integrated Undergraduate and Graduate Study of Veterinary Medicine. Given the above, the student must acquire a minimum number of points from all assessment elements in order to take the final exam. <b>Article 45:</b> a student can justifiably be absent from up to 50 % of the lectures; 30% of the seminars and 30 % of the exercises.

### GRADING AND EVALUATING STUDENT WORK

Continuous knowledge-checking (mid-terms)	<p>During the semester, two colloquiums will be held (1. Written colloquium from the chapter "Pathology of the skin"; 2. Practical examination in Histopathology).</p> <p><b>Written colloquium is from the chapter " Pathology of the skin".</b> In this colloquium it is necessary to achieve at least 10 points; maximum possible points is 16. Colloquium consists of 32 questions; in order to achieve the minimum number of points it is required to answer 20 questions (each correct answer is awarded 0.5 points). The incorrect answers will be counted as negative points (so the total score will be reduced for the number of incorrect answers, while the unanswered questions will not be scored). The colloquium will be held at the Department of Veterinary Pathology. It is required to apply for the colloquiums with the internal application forms that are provided in the student administration office.</p> <p>Dates of colloquiums and Application deadlines are:</p> <ol style="list-style-type: none"> <li>1. Term: 13.5.2019. at 7.30 (Application until 9.5.2019.).</li> <li>2. Term: 4.6.2019. at 7.30 (Application until 30.5.2019.).</li> <li>3. Term: 19.6.2019. at 8 (Application until 14.6.2019.).</li> </ol> <p>The second colloquium is a <b>practical colloquium in Histopathology</b>. From this colloquium it is necessary to achieve a minimum of 10 points, and maximum possible points is 16. Practical examination of the Histopathology is performed at the Department of Veterinary Pathology by examining the knowledge from slides that were presented on histopathology practicals. Each student gets four slides and has to be able to recognize the tissue, describe the lesions and give the diagnosis. Dates of colloquiums are:</p> <ol style="list-style-type: none"> <li>1. Term: 2.5.2019. (last practicals – application is not required).</li> <li>2. Term: 22. 5. 2019. at 7.30. (Application until 17.5.2019.).</li> <li>3. Term: 17. 6. 2019. at 7.30 (Application until 13.6.2019.).</li> </ol>
Final exams (dates)	10/6/2019; 26/6/2019; 8/7/2019; 4/9/2019; 18/9/2019
Form of final exam	Oral exam.

**LITERATURE**

Obligatory literature	<ol style="list-style-type: none"> <li>1. J. F. Zachary: Pathologic Basis of Disease, 6th edition, Elsevier, Philadelphia, 2017.</li> <li>2. Notes and presentations provided by lecturers.</li> </ol>
Optional literature	<ol style="list-style-type: none"> <li>1. Grabarević, Željko i Sabočanec, Ruža (ur.): Osnove razudbe domaćih životinja. Medicinska naklada, Zagreb, 2016.</li> <li>2. Jubb, Kennedy &amp; Palmer, Grant Maxie M : Pathology of Domestic Animals., 6th ed, Saunders Elsevier, 2015.</li> </ol>

**OBJECTIVES AND LEARNING OUTCOMES**

Course objectives	<p>Pathogenesis of noninfectious, infectious and congenital diseases.  Classification and nomenclature of diseases. Morphology of lesions characteristic for certain diseases.  Macroscopic and microscopic recognition of diseases related to the clinical signs of the disease.</p>
Learning outcomes	<p>At the end of the course students will get knowledge in pathology of organic systems necessary for further performing of education in other clinical subjects. The final goal upon the end of the studying is to be able to recognise a pathological process, make a right diagnosis and give the proper therapy, or if the animal perishes to get the right diagnosis in a proper way (by autopsy and other laboratory studies) thus act as a preventive measure for other animals.</p> <p>By the completion of the course students should be able to:</p> <ul style="list-style-type: none"> <li>- analyze pathological changes (lesions) and classify them in order to determine specific animal diseases</li> <li>- analyze microscopic slides of basic pathologic processes and most important animal diseases</li> <li>- correlate macroscopic and microscopic changes together with the results of other ancillary laboratory tests</li> <li>- make diagnosis and conclusion about emergence and development of disease or animal death</li> <li>- write necropsy report</li> </ul>

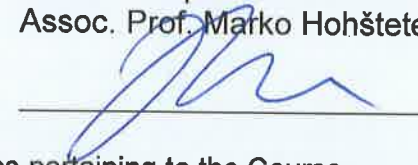
**GRADING SCHEME**

<i>Points</i>	<i>Grade</i>
Up to 59	1 (F)
60-68	2 (E)
69-76	2 (D)
77-84	3 (C)
85-92	4 (B)
93-100	5 (A)

Course leader:  
Assoc. Prof. Andrea Gudan Kurilj



Head of Department/Clinic:  
Assoc. Prof. Marko Hohšteter



Note: The course leader is required to submit a Course Syllabus to all teachers and associates pertaining to the Course.

**GRADING AND EVALUATION OF STUDENT WORK ON COURSES WITH LECTURES,  
SEMINARS and PRACTICALS**

Type of activity	Minimum number of points	Maximum number of points
Lectures attendance	3	6
Seminar attendance	4	6
Practicals attendance	4	6
Active participation in seminars and practicals	5	10
Continuous knowledge checking (mid-terms)	20	32
Final exam	24	40
<b>TOTAL</b>	<b>60</b>	<b>100</b>

**GRADING AND EVALUATION OF STUDENT WORK ON COURSES WITH LECTURES and  
SEMINARS**

Type of activity	Minimum number of points	Maximum number of points
Lecture attendance	3	6
Practicals attendance	8	12
Active participation in practicals	5	10
Continuous knowledge checking (mid-terms)	20	32
Final exam	24	40
<b>TOTAL</b>	<b>60</b>	<b>100</b>

**GRADING AND EVALUATION OF STUDENT WORK ON COURSES WITH SEMINARS and  
EXERCISES**

Type of activity	Minimum number of points	Maximum number of points
Seminar / practicals attendance	11	18
Active participation in seminars and practicals	5	10
Continuous knowledge checking (mid-terms)	20	32
Final exam	24	40
<b>TOTAL</b>	<b>60</b>	<b>100</b>