

UNIVERSITY OF ZAGREB  
 FACULTY OF VETERINARY MEDICINE  
 Heinzelova 55  
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 Division:  
 Department / Clinic: Department of Veterinary Pathology  
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 Register no.:  
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 Zagreb, February 4, 2021.

117400		REPUBLIKA HRVATSKA	
Veterinarski fakultet u Zagrebu			
Primljeno:	04.02.2021		
Klasifikacijska oznaka	Org. jed.		
605-03/20-04/25	251-61-11;251-61-32;		
Urudžbeni broj	Prilozi	Vrijednost	
251-61-11-21-76	0	-	

## COURSE SYLLABUS

Course name: SPECIAL VETERINARY PATHOLOGY

Academic year 2020-21

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

Teachers: Marko Hohšteter, DVM, PhD, Associate Professor; Ivan-Conrado Šoštarić-Zuckermann, DVM, PhD, Assistant Professor

Associate teachers: Lidija Medven Zagradišnik, DVM, PhD; Assistant, Ivana Mihoković, DVM; Dunja Vlahović, DVM, PhD

First day of classes: 22.2.2021.

Last day of classes: 21.5.2021.

Timetable for LECTURES academic year 2020-2021

LECTURES				
Date	Methodological unit	Teacher	Location / time	Literature
22.2.2021.	Pathology of Alimentary System	Assoc. Prof. Andrea Gudan Kurilj	Department of Veterinary Pathology/ 12-14 h	1. J. F. Zachary: Pathologic Basis of Disease, 6th edition, Elsevier, Philadelphia, 2017.  2. V. Kumar, Abul K. Abbas, N. Fausto: Robbins and Cotran Pathologic Basis of Disease, 9th. Elsevier Saunders, Philadelphia, 2015.  3. Notes and presentations provided by lecturers.
23.2.2021.	Pathology of Alimentary System	Assoc. Prof. Andrea Gudan Kurilj	Department of Veterinary Pathology/ 8-10 h	
24.2.2021.	Pathology of Alimentary System	Assoc. Prof. Andrea Gudan Kurilj	Department of Veterinary Pathology/ 10-12 h	
25.2.2021.	Pathology of Liver	Assist. Prof. Ivan C. Šoštarić-Zuckermann	Department of Veterinary Pathology/ 8-10 h	
26.2.2021.	Pathology of Liver and pancreas	Assist. Prof. Ivan C. Šoštarić-Zuckermann	Department of Veterinary Pathology/ 8-10 h	
1.3.2021.	Pathology of Urinary System	Assoc. Prof. Andrea Gudan Kurilj	Department of Veterinary Pathology/ 14-16 h	
8.3.2021.	Pathology of Urinary System	Assoc. Prof. Andrea Gudan Kurilj	Department of Physiology and Radiobiology/ 10-12 h	
10.3.2021.	Pathology of Urinary System	Assoc. Prof. Andrea Gudan Kurilj	Department of Veterinary Pathology/ 12-14 h	
16.3.2021.	Pathology of Respiratory System	Assoc. Prof. Marko Hohšteter	Department of Physiology and Radiobiology/ 8-10 h	
17.3.2021.	Pathology of Respiratory System	Assoc. Prof. Marko Hohšteter	Department of Physiology and Radiobiology/ 14-16 h	
22.3.2021.	Pathology of Respiratory System	Assoc. Prof. Marko Hohšteter	Department of Physiology and Radiobiology/ 8-10 h	
24.3.2021.	Pathology of Endocrine System	Assist. Prof. Ivan C. Šoštarić-Zuckermann	Department of Chemistry and Biochemistry/ 14-16	
26.3.2021.	Pathology of Endocrine System	Assist. Prof. Ivan C. Šoštarić-Zuckermann	Department of Physiology and Radiobiology / 12-14	
31.3.2021.	Pathology of Skin	Assoc. Prof. Andrea Gudan Kurilj	Department of Pharmacology and Toxicology/ 12-14 h	
8.4.2020.	Pathology of Skin	Assoc. Prof. Andrea	Department of Veterinary	

		Gudan Kurilj	Pathology/ 16-18 h	
13.4.2021.	Pathology of Nervous System	Assoc. Prof. Marko Hohšteter	Department of Veterinary Pathology/ 12-14 h	
16.4.2021.	Pathology of Nervous System	Assoc. Prof. Marko Hohšteter	Department of Veterinary Pathology/ 16-18 h	
26.4.2021.	Pathology of Nervous System	Assoc. Prof. Marko Hohšteter	Department of Veterinary Pathology/ 10-12 h	
28.4.2021.	Pathology of Nervous System	Assoc. Prof. Marko Hohšteter	Department of Veterinary Pathology/ 16-18 h	
30.4.2021.	Pathology of Skeletal Muscle	Assist. Prof. Ivan C. Šoštarić-Zuckermann	Department of Veterinary Pathology/ 16-18 h	
3.5.2021.	Pathology of Bones	Assist. Prof. Ivan C. Šoštarić-Zuckermann	Department of Chemistry and Biochemistry/ 14-16 h	
4.5.2021.	Pathology of Female Reproductive System	Assoc. Prof. Marko Hohšteter	Department of Veterinary Pathology/ 12-14 h	
5.5.2021.	Pathology of Female Reproductive System	Assoc. Prof. Marko Hohšteter	Department of Veterinary Pathology/ 14-16 h	
6.5.2021.	Pathology of Male Reproductive System	Assoc. Prof. Marko Hohšteter	Department of Veterinary Pathology/ 10-12 h	
7.5.2021.	Pathology of Cardiovascular System	Assoc. Prof. Andrea Gudan Kurilj	Department of Veterinary Pathology/ 10-12 h	
10.5.2021.	Pathology of Cardiovascular System	Assoc. Prof. Andrea Gudan Kurilj	Department of Veterinary Pathology/ 8-10 h	
11.5.2021.	Pathology of Hematopoietic System	Assist. Prof. Ivan C. Šoštarić-Zuckermann	Department of Veterinary Pathology/ 10-12 h	
12.5.2021.	Pathology of Lymph Nodes	Assist. Prof. Ivan C. Šoštarić-Zuckermann	Department of Veterinary Pathology/ 12-14 h	
13.5.2021.	Pathology of Spleen	Assist. Prof. Ivan C. Šoštarić-Zuckermann	Department of Veterinary Pathology/ 12-14 h	
14.5.2021.	Eye Pathology	Assist. Prof. Ivan C. Šoštarić-Zuckermann	Department of Veterinary Pathology/ 14-16 h	

## Timetable for PRACTICALS academic year 2020-2021

PRACTICALS						
Date	Methodological unit	Teacher	Type of practical	Group	Location / time	Literature
3.3.2021.	Necropsy technique: repetition	AGK, IMB	Clinical practicals	All	Necropsy hall/ 14-18 h	<p>J. F. Zachary: Pathologic Basis of Disease, 6th edition, Elsevier, Philadelphia, 2017.</p> <p>Grabarević, Željko i Sabočanec, Ruža (ur.): Osnove razudbe domaćih životinja. Medicinska naklada, Zagreb, 2016.</p> <p>Notes provided by lecturers.</p>
4.3.2021.	Introduction to writing of necropsy report.	LMZ, ICŠZ	Clinical practicals	All	Necropsy hall/ 14-18 h	
9.3.2021.	Necropsy technique and recognition of pathological changes; writing of necropsy report.	MH, DV	Clinical practicals	All	Necropsy hall/ 8-12 h	
12.3.2021.	Necropsy technique and recognition of pathological changes; writing of necropsy report.	IMB, LMZ	Clinical practicals	All	Necropsy hall/ 8-12 h	
15.3.2021.	Necropsy technique and recognition of pathological changes; writing of necropsy report.	MH, DV	Clinical practicals	All	Necropsy hall/ 12-16 h	
19.3.2021.	Necropsy technique and recognition of pathological changes; writing of necropsy report.	DV, ICŠZ	Clinical practicals	All	Necropsy hall/ 8-12 h	
23.3.2021.	Necropsy technique and recognition of pathological changes; writing of necropsy report.	LMZ, IMB	Clinical practicals	All	Necropsy hall/ 14-18 h	
29.3.2021.	Necropsy technique/	IMB, LMZ	Clinical practicals	All	Necropsy hall/ 14-16 h	

	<p><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>_____</p> <p>Histopathology/ MH, DV</p>	<p>_____</p> <p>Laboratory practicals</p>		<p>Department of VP 16-18 h</p>	
7.4.2021.	<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): multiple arterial</p>	<p>LMZ, IMB</p>	<p>Laboratory practicals</p>	All	<p>Department of Veterinary Pathology/ 8-12 h</p>	

	thrombi. (50) Valve (dog): Valvular (verrucous) endocarditis, chronic. (51) Valve (pig): Endocarditis, thrombotic, septic. (55) Spleen (pig): haemorrhagic infarction.					
8.4.2021.	<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): Cutaneous Actinomycosis. <b>Histopathology V</b> Slides: (30) Skin (dog): Nodular sebaceous hyperplasia. (32) Skin (dog): Squamous cell carcinoma. (28) Skin (dog):	IMB, ICŠZ	Laboratory practicals	All	Department of Veterinary Pathology / 12-16 h	

	Papilloma. (33) Testis (dog): Seminoma.					
12.4.2021.	<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	ICŠZ, MH	Laboratory practicals	All	Department of Veterinary Pathology / 14-18 h	
15.4.2021.	<b>Histopathology VIII</b> Slides: (42) Stomach (dog): Stomach ulcer. (43) Small intestine (dog): Parvovirus.	DV, LMZ	Laboratory practicals	All	Department of Veterinary Pathology / 12-16 h	

	(81) Kidney (cat): FIP <b>Histopathology IX</b> Slides: (105) Lung, urinary bladder (dog): Distemper (104) Brain (dog): Rabies					
27.4.2021.	<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.	AGK, DV	Laboratory practicals	All	Department of Veterinary Pathology/ 14-18 h	
29.4.2021.	<b>Histopathology XII</b>		Laboratory	All	Department of	



	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.	LMZ, MH	practicals		Veterinary Pathology / 10-14 h	
4.5.2021.	<b>Histopathology XIV and XV</b> Slides - all: repetition and colloquium	IMB, ICŠZ	Laboratory practicals	All	Department of Veterinary Pathology/ 10-14 h	
17.5.2021.	<b>Konverzatorij (case study analysis)</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/ 12-15 h	
18.5.2021.	<b>Konverzatorij</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/ 12-15 h	
19.5.2021.	<b>Konverzatorij</b> Presentations of necropsy cases with active participation of	Lidija Medven Zagradišnik, PhD	Laboratory practicals	All	Department of Veterinary Pathology/ 13-16 h	

	students in analysis and discussion					
20.5.2021.	<b>Konverzatorij</b> Presentations of necropsy cases with active participation of students in analysis and discussion	Assist. Prof. Ivan-Conrado Šoštarić-Zuckermann	Laboratory practicals	All	Department of Veterinary Pathology/ 12-15 h	
21.5.2021.	<b>Konverzatorij</b> Presentations of necropsy cases with active participation of students in analysis and discussion	Ivana Mihoković Buhin, DVM, Assistant	Laboratory practicals	All	Department of Veterinary Pathology/ 13-16 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 53 hours of practicals to get a minimum of 8 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 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. <b>The final exam consists of a written and oral part. Written part</b> of the final exam will last for 90 minutes, and consists of two parts. The first part is <b>recognition of macroscopic pathological changes</b> (duration: 20 minutes). In this part, 10 photographs of pathological processes (one photo at 2 minute intervals) will be displayed on the LCD projector. For each photo, two questions will be asked, and the student can get maximum of 1 point per photograph (points are awarded in range from 0.25 to 1). The second part of the written exam is

	<p>in the <b>essay form</b>. Each question will have guidelines to clarify what is expected in answers. Students will briefly describe some pathological processes. This part of the exam consists of 9 questions, six of which give up to four (4) points (24 points in total), and three (3) questions bring up to two (2) points (6 points total). Two questions from those who bring 4 points are qualifying questions that must be answered with a minimum of 3 points. The maximum number of points on the written exam is 40. After scoring a written part of the final exam, students who got the minimum number of points (24) will be allowed to access the oral exam, while those with fewer points receive a negative grade and will not be able to access the oral part of the final exam. Questions at the oral part of the exam will be on the same principle as essay type question in the written part. The grade on the final exam is the one derived from the points that student has collected corresponding to questions from the written and oral part of the exam. The maximum amount of points in final exam is 40.</p>
Examination requirements	<p>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.</p>

### 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. Dates of colloquiums and Application deadlines are:</p> <ol style="list-style-type: none"> <li>1. Term: 26.4.2021. at 12.00 (Application until 23.4.2021. until 12.00).</li> <li>2. Term: 17.5.2021. at 7.30 (Application until 14.5.2021.).</li> <li>3. Term: 9.6.2021. at 9 (Application until 7.6.2021.).</li> </ol>
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	<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: 4.5.2021. (last practicals – application is not required).</li> <li>2. Term: 24. 5. 2021. at 9.00. (Application until 21.5.2021.).</li> <li>3. Term: 9. 6. 2021. at 10.00 (Application until 7.6.2021.).</li> </ol>
Final exams (dates)	25/3/2021; 23/4/2021; 23/6/2021; 5/7/2021; 31/8/2021; 14/9/2021; 23/9/2021
Form of final exam	Written and 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</p>

act as a preventive measure for other animals.

By the completion of the course students should be able to:

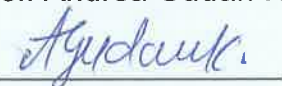
- analyze pathological changes (lesions) and classify them in order to determine specific animal diseases
- analyze microscopic slides of basic pathologic processes and most important animal diseases
- correlate macroscopic and microscopic changes together with the results of other ancillary laboratory tests
- make diagnosis and conclusion about emergence and development of disease or animal death
- write necropsy report

### 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.