

UNIVERSITY OF ZAGREB  
FACULTY OF VETERINARY MEDICINE  
Heinzelova 55  
Tel. 01/  
Division:  
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Register no.:  
File no.:  
Zagreb,

## COURSE SYLLABUS

Course name: GENERAL 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; Ivan-Conrado Šoštarić-Zuckermann, DVM, PhD, Assistant Professor

Associate teachers: Doroteja Huber, DVM, Assistant; Lidija Medven Zagredišnik, DVM, Assistant

First day of classes: 1.10.2018.

Last day of classes: 21.11.2018.

### Timetable for LECTURES academic year 2017-2018

LECTURES				
Date	Methodological unit	Teacher	Location / time	Literature
1.10.2018.	Introduction to Veterinary Pathology	Assist. Prof. Ivan-Conrado Šoštarić-Zuckermann	Department of Veterinary Pathology/ 8-9 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. D. O. Slauson, Cooper, B. J.: Mechanisms of Disease. 3th edition, Mosby, St. Louis, 2002.</li> <li>4. Notes and presentations provided by lecturers.</li> </ol>
1.10.2018.	Reversible cell injury	Prof. Željko Grabarević	Department of Veterinary Pathology/ 9-10 h	
1.10.2018.	Cell death: apoptosis	Prof. Željko Grabarević	Department of Veterinary Pathology/ 12-14 h	
3.10.2018.	Cell death: necrosis	Prof. Željko Grabarević	Department of Veterinary Pathology/ 8-10 h	
4.10.2018.	Chronic cell injury and cell adaptations	Prof. Željko Grabarević	Department of Veterinary Pathology/ 12-13 h	
4.10.2018.	Circulatory disorders: general	Assoc. Prof. Andrea Gudan Kurilj	Department of Veterinary Pathology/ 13-14 h	
5.10.2018.	Circulatory disorders: edema, hyperemia and congestion, hemostasis	Assoc. Prof. Andrea Gudan Kurilj	Department of Veterinary Pathology/ 11-13 h	
10.10.2018.	Circulatory disorders: haemorrhage, thrombosis, DIK, embolization	Assoc. Prof. Andrea Gudan Kurilj	Department of Veterinary Pathology/ 9-11 h	
12.10.2018.	Circulatory disorders: infarct, shock	Assoc. Prof. Andrea Gudan Kurilj	Department of Veterinary Pathology/ 8-9 h	
12.10.2018.	Acute inflammation: general	Assoc. Prof. Marko Hohšteter	Department of Veterinary Pathology/ 9-10 h	
16.10.2018.	Acute inflammation: fluidic and cellular phase, effector cells, phagocytosis	Assoc. Prof. Marko Hohšteter	Department of Veterinary Pathology/ 13-15 h	
19.10.2018.	Acute inflammation: chemical mediators, reparative phase of	Assoc. Prof. Marko Hohšteter	Department of Veterinary Pathology/ 14-16 h	

	acute inflammation			
22.10.2018.	Acute inflammation: morphologic classification of exudates	Assoc. Prof. Marko Hohšteter	Department of Veterinary Pathology/ 8-9 h	
22.10.2018.	Chronic inflammation: cellular mechanisms	Assist. Prof. Ivan-Conrado Šoštarić-Zuckermann	Department of Veterinary Pathology/ 9-10 h	
23.10.2018.	Chronic inflammation: granulomatous inflammation; wound healing and angiogenesis	Assist. Prof. Ivan-Conrado Šoštarić-Zuckermann	Department of Veterinary Pathology/ 13-15 h	
24.10.2018.	Diseases of immunity: hypersensitivity reactions, amyloidosis	Assist. Prof. Ivan-Conrado Šoštarić-Zuckermann	Department of Veterinary Pathology/ 9-11 h	
26.10.2018.	Diseases of immunity: general features of autoimmune diseases	Assist. Prof. Ivan-Conrado Šoštarić-Zuckermann	Department of Veterinary Pathology/ 8-9 h	
26.10.2018.	Neoplasia: general nomenclature; tumor characteristics; neoplastic transformation	Assoc. Prof. Andrea Gudan Kurilj	Department of Veterinary Pathology/ 9-10 h	
29.10.2018.	Neoplasia: heritable alterations; molecular determinants; mechanisms of carcinogenesis	Assoc. Prof. Andrea Gudan Kurilj	Department of Veterinary Pathology/ 9-11 h	
13.11.2018.	Neoplasia: tumor immunity; tumor dissemination; paraneoplastic syndrome	Prof. Željko Grabarević	Department of Veterinary Pathology/ 7.30-9 h	

Timetable for SEMINARS academic year 2017-2018

SEMINARS					
Date	Methodological unit	Teacher	Group	Location / time	Literature

## Timetable for PRACTICALS academic year 2017-2018

PRACTICALS						
Date	Methodological unit	Teacher	Type of practical	Group	Location / time	Literature
2.10.2018.	Necropsy technique: an introduction	Assist. Prof. Ivan-Conrado Šoštarić-Zuckermann	Special clinical practicals	All	Necropsy hall/ 10-14 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>
11.10.2018.	Necropsy technique: general principles	Assoc. Prof. Andrea Gudan Kurilj	Special clinical practicals	All	Necropsy hall/ 9-13 h	
12.10.2018.	Necropsy technique: the necropsy record	Assist. Doroteja Huber	Special clinical practicals	All	Necropsy hall/ 10-14 h	
16.10.2018.	Necropsy technique: describing lesions	Assoc. Prof. Marko Hohšteter	Special clinical practicals	All	Necropsy hall/ 9-13 h	
19.10.2018.	Necropsy technique: collection and submission of specimens for laboratory examination	Assoc. Prof. Andrea Gudan Kurilj	Special clinical practicals	All	Necropsy hall/ 10-14 h	
23.10.2018.	Necropsy technique: tissue changes – normal anatomical structures and species variation	Assist. Doroteja Huber	Special clinical practicals	All	Necropsy hall/ 9-13 h	
25.10.2018.	Necropsy technique: physiological, senile and agonal changes	Assist. Lidija Medven Zagradišnik	Special clinical practicals	All	Necropsy hall/ 9-13 h	
30.10.2018.	Necropsy technique: post mortem changes	Assist. Lidija Medven Zagradišnik	Special clinical practicals	All	Necropsy hall/ 13-17 h	
5.11.2018.	Necropsy technique: dissection and examination stage	Assoc. Prof. Andrea Gudan Kurilj	Special clinical practicals	All	Necropsy hall/ 14-18 h	
8.11.2018.	Necropsy technique:	Assoc. Prof. Marko	Special clinical	All	Necropsy hall/ 8-12 h	

	dissection and examination stage	Hohšteter	practicals			
12.11.2018.	Necropsy technique: dissection, examination and recognition of pathological changes	Assist. Prof. Ivan-Conrado Šoštarić-Zuckermann	Special clinical practicals	All	Necropsy hall/ 14-18 h	
15.11.2018.	Necropsy technique: dissection, examination and recognition of pathological changes	Assist. Doroteja Huber	Special clinical practicals	All	Necropsy hall/ 9-13 h	
19.11.2018.	Necropsy technique: dissection, examination and recognition of pathological changes	Šoštarić-Zuckermann Assist. Lidija Medven Zagradišnik	Special clinical practicals	All	Necropsy hall/ 14-18 h	
20.11.2018.	Necropsy technique: dissection, examination and recognition of pathological changes	Assoc. Prof. Marko Hohšteter	Special clinical practicals	All	Necropsy hall/ 9-13 h	
21.11.2018.	Colloquium	Assist. Prof. Ivan-Conrado Šoštarić-Zuckermann	Special clinical practicals	All	Necropsy hall/ 15-19 h	

**STUDENT OBLIGATIONS**

Lecture attendance	The total number of lectures include 30 hours. During fifth semester student must be present on at least 15 hours (50%) of lectures to get minimal 3 points (each lecture hour is calculated as 0.2 points). A student can get a maximum of 6 points for this element.
Seminars attendance	
Practicals attendance	The total number of practicals include 60 hours. During the fifth semester student must be present on at least 40 hours of practicals to get a minimum of 8 points (each hour of practical is calculated as 0.2 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 necropsies during semester, where success is scored as follows: 0-5 points (0 points = did not perform necropsy; 1 point = performed necropsy but showed insufficient knowledge of the theory and techniques; 2 points = performed necropsy, good knowledge of technique but lack of knowledge in theory; 3 points = performed necropsy, good knowledge of theory and techniques; 4 points = performed necropsy, very good knowledge of theory and techniques; 5 points = performed necropsy, excellent knowledge of the theory and technique). The range of 5 to 10 points student achieves by combining ie. adding two values earned by necropsies (eg. student carried out one necropsy at which he/she demonstrated good knowledge of theory and technique [3 points] and another one at which he/she demonstrated excellent knowledge of theory and technique [5 points], that way the student achieves 8 points from participation at practical).
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 checking. 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 "Acute inflammation"; 2. Practical examination of the Necropsy).</p> <p>Written colloquium is from the chapter "Acute inflammation". 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: 19.11.2018. at 7.30 (Application until 16.11.2018.).</li> <li>2. Term: 10.12.2018. at 10 (Application until 7.12.2018.).</li> <li>3. Term: 16.1.2019. at 9 (Application until 15.1.2019.).</li> </ol> <p>The second colloquium is a practical examination of the necropsy. From this colloquium it is necessary to achieve a minimum of 10 points, and maximum possible points is 16. Practical examination of the necropsy is performed in Necropsy hall by examining the practical and theoretical knowledge of the necropsy. Dates of colloquiums are:</p> <ol style="list-style-type: none"> <li>1. Term: 21.11.2018. (last practical, Necropsy hall – application is not required).</li> <li>2. Term: 11.12.2018. at 9 (Application until 7.12.2018.).</li> <li>3. Term: 8.1.2019. at 11 (Application until 7.1.2019.).</li> </ol>
Final exams (dates)	14/12/2018; 10/1/2019; 31/1/2019; 14/2/2019
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. D. O. Slauson, Cooper, B. J.: Mechanisms of Disease. 3th edition, Mosby, St. Louis, 2002.</li> <li>3. Notes and presentations provided by lecturers.</li> </ol>
Optional literature	<ol style="list-style-type: none"> <li>1. V. Kumar, Abul K. Abbas, N. Fausto: Robbins and Cotran Pathologic Basis of Disease, 9th. Elsevier Saunders, Philadelphia, 2015.</li> </ol>



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|  | 2. Grabarević, Željko i Sabočanec, Ruža (ur.): Osnove razudbe domaćih životinja. Medicinska naklada, Zagreb, 2016. |
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### **OBJECTIVES AND LEARNING OUTCOMES**

Course objectives	Students gain knowledge on basic pathology including general aetiology, circulatory disturbances, cell injury and cell death, discyclia, accommodation processes and hypoxia, organisation processes and healing, inflammation and reparation, tumours and hereditary anomalies. Students learn some basic methods used in modern pathology, like autopsy and taking materials for additional laboratory research, especially emphasising histopathology.
Learning outcomes	At the end of the course students will get knowledge in general pathology 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.

**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

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

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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**

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

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

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

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

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