

UNIVERSITY OF ZAGREB
 FACULTY OF VETERINARY MEDICINE
 Heinzelova 55, 10000 Zagreb
 Tel. 01/2390-183
 Division: Basic and Preclinical Sciences
 Organizational unit: Pathophysiology
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 Register No of the organisational unit:
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Veterinarski fakultet u Zagrebu		
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Uredžbeni broj	Prilozi	Vrijednost
251-61-13/253-24-78	0	-

COURSE SYLLABUS

Course name: Pathophysiology II

Academic year 2023/2024

Course leader: Full Prof. Romana Turk
 Deputy course leader: Full Prof. Maja Belić

Teachers: Full Prof. Maja Belić; Full Prof. Mirna Robić; Full Prof. Romana Turk; teaching assistant Siniša Faraguna, DVM

Associate: Sandra Kunštek, M.Sc. Biotech.

First day of classes: 8/4/2024

Last day of classes: 7/6/2024

Activities - Pathophysiology II (1/4)								
	Start T	End Ti	Subject	Group	Note	Length	Instructor	Room
08/04/2024	8:15	9:45	p01 Metabolic disturbances I	6E-1, 6E-2, 6E-3		1:30	Robic M.	P_fiziologija
10/04/2024	8:15	9:45	p02 Metabolic disturbances II	6E-1, 6E-2, 6E-3		1:30	Robic M.	V_patofiziologija
11/04/2024	9:45	11:15	v01 Disturbances in lipid metabolism	6E-1, 6E-2, 6E-3		1:30	Nastavnici na predmetu	R_patofiziologija, V_patofiziologija
12/04/2024	12:00	13:30	v02 Clinical enyzmology	6E-1, 6E-2, 6E-3		1:30	Nastavnici na predmetu	R_patofiziologija, V_patofiziologija
15/04/2024	8:00	9:30	v03 Disturbances ib bilirubin metabolism	6E-1, 6E-2, 6E-3		1:30	Nastavnici na predmetu	R_patofiziologija, V_patofiziologija
16/04/2024	13:45	14:30	p03 Metabolic disturbances III	6E-1, 6E-2, 6E-3		0:45	Robic M.	P_fiziologija
16/04/2024	14:30	15:15	p04 Liver and biliary system I	6E-1, 6E-2, 6E-3		0:45	Turk R.	P_fiziologija
18/04/2024	9:15	10:45	p05 Liver and biliary system II	6E-1, 6E-2, 6E-3		1:30	Turk R.	P_fiziologija
23/04/2024	7:30	9:00	v04 Laboratory diagnostics CSF	6E-1, 6E-2, 6E-3		1:30	Nastavnici na predmetu	R_patofiziologija, V_patofiziologija
24/04/2024	12:30	14:00	p06 Liver and biliary system III	6E-1, 6E-2, 6E-3		1:30	Turk R.	P_fiziologija
25/04/2024	14:30	16:00	v05 Laboratory diagnostics urine	6E-1, 6E-2, 6E-3		1:30	Nastavnici na predmetu	R_patofiziologija, V_patofiziologija
26/04/2024	12:30	14:00	v06 Colloquium I, Hematopoietic system	6E-1, 6E-2, 6E-3		1:30	Nastavnici na predmetu	R_patofiziologija, V_patofiziologija
29/04/2024	7:30	9:00	v07 RBC count	6E-1, 6E-2, 6E-3		1:30	Nastavnici na predmetu	R_patofiziologija, V_patofiziologija
30/04/2024	10:00	11:30	v08 Reticulocyte count	6E-1, 6E-2, 6E-3		1:30	Nastavnici na predmetu	R_patofiziologija, V_patofiziologija
07/05/2024	8:15	9:45	v09 Determination of ESR, HB and PCV	6E-1, 6E-2, 6E-3		1:30	Nastavnici na predmetu	R_patofiziologija, V_patofiziologija

Activities - Pathophysiology II (2/4)								
	Start T	End Ti	Subject	Group	Note	Length	Instructor	Room
08/05/2024	9:45	11:15	v10 Leukopoiesis	6E-1, 6E-2, 6E-3		1:30	Nastavnici na predmetu	R_patofiziologija, V_patofiziologija
09/05/2024	14:00	15:30	p08 Disturbances in forestomachs II	6E-1, 6E-2, 6E-3		1:30	Belic M.	P_fiziologija
10/05/2024	9:30	11:00	v11 WBC count	6E-1, 6E-2, 6E-3		1:30	Nastavnici na predmetu	R_patofiziologija, V_patofiziologija
13/05/2024	14:00	15:30	v12 Determination of eosinophils count	6E-1, 6E-2, 6E-3		1:30	Nastavnici na predmetu	R_patofiziologija, V_patofiziologija
14/05/2024	8:00	9:30	v13 Blood film preparation	6E-1, 6E-2, 6E-3		1:30	Nastavnici na predmetu	R_patofiziologija, V_patofiziologija
15/05/2024	15:00	16:30	p07 Disturbances in forestomachs I	6E-1, 6E-2, 6E-3		1:30	Belic M.	P_fiziologija
16/05/2024	15:00	16:30	v14 Qualitative and quantitative changes in DLC	6E-1, 6E-2, 6E-3		1:30	Nastavnici na predmetu	R_patofiziologija, V_patofiziologija
17/05/2024	15:00	16:30	p09 Disturbances in stomach digestion	6E-1, 6E-2, 6E-3		1:30	Belic M.	V_patofiziologija
20/05/2024	8:15	9:45	v15 Morphologic changes of RBC	6E-1, 6E-2, 6E-3		1:30	Nastavnici na predmetu	R_patofiziologija, V_patofiziologija
20/05/2024	14:00	15:30	p10 Disturbances in motoric function	6E-1, 6E-2, 6E-3		1:30	Belic M.	P_fiziologija
21/05/2024	8:15	9:45	v16 Leukogram interpretation	6E-1, 6E-2, 6E-3		1:30	Nastavnici na predmetu	R_patofiziologija, V_patofiziologija
21/05/2024	14:00	15:30	p11 Disturbances in intestinal digestion	6E-1, 6E-2, 6E-3		1:30	Belic M.	P_fiziologija
22/05/2024	8:15	9:45	p12 Hematopoietic system I	6E-1, 6E-2, 6E-3		1:30	Belic M.	V_patofiziologija

Activities - Pathophysiology II (3/4)								
	Start T	End Ti	Subject	Group	Note	Length	Instructor	Room
23/05/2024	8:30	10:00	v18 Bone marrow smear	6E-1, 6E-2, 6E-3		1:30	Nastavnici na predmetu	R_patofiziologija, V_patofiziologija
23/05/2024	12:30	14:00	v17 Blood film morphology changes	6E-1, 6E-2, 6E-3		1:30	Nastavnici na predmetu	R_patofiziologija, V_patofiziologija
23/05/2024	14:30	16:00	p13 Hematopoietic system II	6E-1, 6E-2, 6E-3		1:30	Belic M.	V_patofiziologija
24/05/2024	8:15	9:45	v19 Leukemias and lymphomas	6E-1, 6E-2, 6E-3		1:30	Nastavnici na predmetu	R_patofiziologija, V_patofiziologija
24/05/2024	14:30	16:00	p14 Disorders of hemostasis	6E-1, 6E-2, 6E-3		1:30	Turk R.	P_fiziologija
27/05/2024	8:15	9:45	p15 Pulmonali diseases I	6E-1, 6E-2, 6E-3		1:30	Robic M.	P_fiziologija
27/05/2024	12:00	13:30	v20 Haematology of birds	6E-1, 6E-2, 6E-3		1:30	Nastavnici na predmetu	R_patofiziologija, V_patofiziologija
28/05/2024	8:15	9:45	p16 Pulmonali diseases II, shock	6E-1, 6E-2, 6E-3		1:30	Robic M.	V_patofiziologija
28/05/2024	10:00	11:30	v21 Haematology of reptiles	6E-1, 6E-2, 6E-3		1:30	Nastavnici na predmetu	R_patofiziologija, V_patofiziologija
28/05/2024	12:00	13:30	p17 Kidney diseases I	6E-1, 6E-2, 6E-3		1:30	Turk R.	V_patofiziologija
29/05/2024	9:15	10:45	v22 Practical colloqium II	6E-1, 6E-2, 6E-3		1:30	Nastavnici na predmetu	R_patofiziologija, V_patofiziologija
29/05/2024	11:00	12:30	p18 Kidney diseases II	6E-1, 6E-2, 6E-3		1:30	Turk R.	V_patofiziologija
03/06/2024	10:30	12:00	v23 Hemostasis	6E-1, 6E-2, 6E-3		1:30	Nastavnici na predmetu	R_patofiziologija, V_patofiziologija
03/06/2024	12:15	13:45	p19 Heart diseases I	6E-1, 6E-2, 6E-3		1:30	Robic M.	P_fiziologija
04/06/2024	10:00	11:30	p20 Heart diseases II	6E-1, 6E-2, 6E-3		1:30	Turk R.	V_patofiziologija
04/06/2024	12:00	13:30	s01 Individual presentation I	6E-1, 6E-2, 6E-3		1:30	Turk R.	V_patofiziologija

Activities - Pathophysiology II (4/4)								
	Start T	End Ti	Subject	Group	Note	Length	Instructor	Room
05/06/2024	9:30	11:00	v24 Laboratory diagnostics of kidneys	6E-1, 6E-2, 6E-3		1:30	Nastavnici na predmetu	R_patofiziologija, V_patofiziologija
05/06/2024	11:30	13:00	p21 Heart diseases III	6E-1, 6E-2, 6E-3		1:30	Turk R.	P_fiziologija
05/06/2024	13:30	15:00	s02 Individual presentation II	6E-1, 6E-2, 6E-3		1:30	Belic M.	V_patofiziologija
06/06/2024	10:00	11:30	v25 Colloqium III, Interpretation of laboratory findings	6E-1, 6E-2, 6E-3		1:30	Nastavnici na predmetu	R_patofiziologija, V_patofiziologija
07/06/2024	10:00	11:30	s03 Individual presentation III	6E-1, 6E-2, 6E-3		1:30	Robic M.	V_patofiziologija
Total: 49						72:00		

STUDENT OBLIGATIONS

Lecture attendance	Student must be present at least 20 hours of lectures to gain minimal 3 points. For each excused absence student will get back 0.154 points per hour. Maximal number of points for lecture attendance is 6 points.
Seminars attendance	Student must be present at least 5 hours of seminars to gain minimal four points. Each excused absence student can make up in agreement with seminar leader in written form and the points for attendance could be regained. Student can achieve maximum 6 points for seminar attendance.
Practicals attendance	Student must be present at least 40 hours of practicals to achieve minimal 4.8 points. Each excused absence within the limit (10 hours, i.e. 5 programs) student can make up in agreement with practical leader and 0.12 points per hour could be regain. Maximal number of points, which can be achieved from practical attendance, is 6 points.
Active participation in seminars and practicals	Each attended, written and signed practical results in 0.2 points, finally maximal 5 points (25 programs x 0.2 = 5). During practicals, short oral knowledge checking will be performed and that maximal 2.5 points can be gained. During seminars student should prepare oral presentation with PowerPoint presentation of given topics and that way can gain maximal 2.5 points.
Final exam	The final exam begins with result analysis of each evaluation element. For final exam attendance, student must gain minimum 16 points from attendance and activity on lectures, seminars and practicals, and minimal 20 points from continuous knowledge checking. Regardless to the final sumo of gained points until final exam, student must show sufficient knowledge at final exam. Minimal number of points which can be gained at final exam is 24, maximal is 40. If student did not show sufficient knowledge at final exam, she/he can access the exam in the next term. Final mark is formed based on total number of points from all elements of evaluation.
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. Article 45: a student can justifiably be absent from up to 50 % of the lectures; 20 % of the seminars and 20 % of the practicals.

GRADING AND EVALUATING STUDENT WORK

Continuous knowledge-checking (colloquium)	<p>Three are 2 written and 1 practical colloquiums that will be performed in regular practicals terms:</p> <ol style="list-style-type: none"> 1. Written test from biochemical practicals contains 6 questions. Each correct answer is worth 2 points. Maximal 12 points can be achieved. Minimal 7 points are required. 2. Written test from hematological practicals contains 16 questions. Each correct answer is worth one point. Maximal 16 points can be achieved. Minimal 10 points are required. 3. Practical colloquium includes recognition blood cells and their morphology changes on the blood smear. Maximal 4 points can be achieved. Minimal 3 points are required. <p>A total score from all 3 colloquiums is 32 points. Minimal 20 points are required.</p> <p>For students who do not achieve minimal number of points from each colloquium, three additional terms will be organized during the academic year. Students who do not pass colloquiums in current academic year will lose the possibility to attend the colloquiums and must re-enroll the course to gain sufficient knowledge and possibility to attend the colloquiums in the following academic year.</p> <p>Dates of colloquiums: 26/4/24, 29/5/24, 6/6/24</p>
Final exams (dates)	20/6/2024; 10/7/2024; 9/9/2024; 19/9/2024
Form of final exam	oral

LITERATURE

Obligatory literature	<p>DUNLOP, R. H., C.-H. MALBERT (2004): Veterinary Pathophysiology, Blackwell Publishing, Ames, Iowa.</p> <p>FELDMAN, B. F., J. G. ZINKL, N. C. JAIN (2000): Schalm's Veterinary Hematology. Lippincott Williams and Wilkins, Philadelphia, Baltimore, New York, London, Buenos Aires, Hong Kong, Sydney, Tokyo.</p> <p>SLAUSON, D. O., B. J. COOPER (2002): Mechanism of Disease. Mosby, St. Louis, London, Philadelphia, Sydney, Toronto.</p> <p>HANSEN, M. (1998): Pathophysiology. Foundations of disease and Clinical Intervention. Saunders company, USA.</p> <p>REAGAN, W. J., T. G. SANDERS, D. B. DENICOLA (1998): Veterinary Hematology: Atlas of Common Domestic Species, Iowa State University Press.</p> <p>E-learning materials</p>
Optional literature	

OBJECTIVES AND LEARNING OUTCOMES

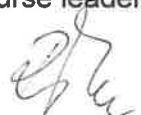
Course objectives	<p>The course objective is gaining knowledge on mechanisms involved in development of pathophysiological processes in individual organs and organ systems on molecular and cellular level and tissue and organs levels which provides understanding the course of disease and basis for understanding clinical courses. Overall consideration of pathophysiological mechanisms enables students to develop sense for integrative approach to pathological process at the whole organism level. In addition, the objective of the course is to develop skills in laboratory diagnostic of pathological processes and interpretation of changes in laboratory findings that could help in diagnosis of diseases.</p>
Learning outcomes	<p>After successful mastering, student will be able to describe digestive system pathophysiology, describe disturbances in hepatic and biliary function, define disturbances in carbohydrate, fat and protein metabolism, describe renal diseases pathophysiology, describe disturbances in blood and hematological system functions and heart diseases, and describe disturbances in respiratory system functions. In addition, students will gain skills in performing biochemical and hematological laboratory diagnostics and</p>

interpretation of laboratory findings to be used in understanding the mechanisms and course of pathological process.

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:



Prof. Romana Turk

Head of organizational unit:



Prof. Maja Belic

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