

UNIVERSITY OF ZAGREB
FACULTY OF VETERINARY MEDICINE
Tel. +385 (0)1 2390 187
Division: Basic and Preclinical Science Division
Organizational unit: Physiology and Radiobiology
E-mail of the course leader: ana.shek@vef.unizg.hr
Register No of the organisational unit: /

Zagreb, September 1st, 2025

		
207138	REPUBLIKA HRVATSKA	
Veterinarski fakultet u Zagrebu		
Primljeno:	09.09.2025	
Klasifikacijska oznaka	Org. jed.	
602-04/25-22/34	251-61-41;251-61-32;	
Urudžbeni broj	Prilozi	Vrijednost
251-61-06-25-65	0	-

COURSE SYLLABUS

Course name: Physiology of Domestic Animals I

Academic year 2025/2026

Course leader: Assoc. Prof. Ana Shek Vugrovečki

Deputy course leader: Assoc. Prof. Ivona Žura Žaja

Teachers: Assoc. Prof. Lana Pađen; Assoc. Prof. Ana Shek Vugrovečki, Assoc. Prof. Ivona Žura Žaja, Assist. Prof. Jadranka Pejaković

Associate teachers: Stefani Fruk, DVM

First day of classes: 29/09/2025

Last day of classes: 16/01/2026

Activities - Physiology of Domestic Animals I (1/6)

Start Dat	Start	End	Subject	Subject	Group	Note	Length	Instructor	Room
29/09/2025	8:15	9:45	Physiology of Domestic Animals I	p01 Introduction, the cell	3E-1, 3E-2, 3E-3		1:30	Pađen L.	P_fiziologija
01/10/2025	12:00	13:30	Physiology of Domestic Animals I	p02 Body fluids;Function and composition of blood	3E-1, 3E-2, 3E-3		1:30	Shek - Vugrovečki A.	P_fiziologija
02/10/2025	12:00	13:30	Physiology of Domestic Animals I	p03 Homeostatis; acid-base balance	3E-1, 3E-2, 3E-3		1:30	Žura Žaja I.	P_fiziologija
07/10/2025	11:45	15:00	Physiology of Domestic Animals I	v01 Transport across biological membranes	3E-3		3:15	Nastavnici na predmetu	R_fiziologija, R_patofiziologija
08/10/2025	8:15	11:30	Physiology of Domestic Animals I	v01 Transport across biological membranes	3E-1, 3E-2		3:15	Nastavnici na predmetu	R_fiziologija, R_patofiziologija
08/10/2025	11:45	14:15	Physiology of Domestic Animals I	v02 Osmotic resistance of erythrocytes	3E-1, 3E-2		2:30	Nastavnici na predmetu	V_fiziologija
09/10/2025	13:30	16:00	Physiology of Domestic Animals I	v02 Osmotic resistance of erythrocytes	3E-3		2:30	Nastavnici na predmetu	V_fiziologija
10/10/2025	13:15	14:45	Physiology of Domestic Animals I	p04 Erythrocytes,leukocytes and hematopoiesis	3E-1, 3E-2, 3E-3		1:30	Shek - Vugrovečki A.	P_fiziologija

Activities - Physiology of Domestic Animals I (2/6)

Start Dat	Start	End	Subject	Subject	Group	Note	Length	Instructor	Room
14/10/2025	13:30	16:00	Physiology of Domestic Animals I	v03 Blood sampling, sample processing	3E-3		2:30	Nastavnici na predmetu	V_fiziologija
16/10/2025	8:15	10:45	Physiology of Domestic Animals I	v03 Blood sampling, sample processing	3E-1, 3E-2		2:30	Nastavnici na predmetu	V_fiziologija
16/10/2025	12:00	12:45	Physiology of Domestic Animals I	p05 Leukocytes	3E-1, 3E-2, 3E-3		0:45	Shek - Vugrovečki A.	P_fiziologija
17/10/2025	10:00	11:30	Physiology of Domestic Animals I	p06 Hemostatis and thrombocytes	3E-1, 3E-2, 3E-3		1:30	Shek - Vugrovečki A.	P_fiziologija
28/10/2025	13:45	16:15	Physiology of Domestic Animals I	v04 Hb,Hct,MCV,MCH, MCHC,ESR	3E-3		2:30	Nastavnici na predmetu	V_fiziologija
29/10/2025	8:15	10:45	Physiology of Domestic Animals I	v04 Hb,Hct,MCV,MCH, MCHC,ESR	3E-1, 3E-2		2:30	Nastavnici na predmetu	V_fiziologija
30/10/2025	8:00	11:15	Physiology of Domestic Animals I	v05 Erythrocyte count	3E-3		3:15	Nastavnici na predmetu	V_fiziologija
30/10/2025	13:00	16:15	Physiology of Domestic Animals I	v05 Erythrocyte count	3E-1, 3E-2		3:15	Nastavnici na predmetu	V_fiziologija
31/10/2025	10:00	10:45	Physiology of Domestic Animals I	p07 Functions and orhanization - nervous system	3E-1, 3E-2, 3E-3		0:45	Žura Žaja I.	P_fiziologija

Activities - Physiology of Domestic Animals I (3/6)

Start Dat	Start	End	Subject	Subject	Group	Note	Length	Instructor	Room
04/11/2025	10:45	13:15	Physiology of Domestic Animals I	v06 Leukocyte count, thrombo. and lympho. assessment	3E-3		2:30	Nastavnici na predmetu	V_fiziologija
05/11/2025	8:15	10:45	Physiology of Domestic Animals I	v06 Leukocyte count, thrombo. and lympho. assessment	3E-1, 3E-2		2:30	Nastavnici na predmetu	V_fiziologija
06/11/2025	8:15	9:45	Physiology of Domestic Animals I	p08 Nervous system cells, neurotransmission	3E-1, 3E-2, 3E-3		1:30	Žura Žaja I.	P_fiziologija
07/11/2025	8:15	9:45	Physiology of Domestic Animals I	p09 Central nervous system	3E-1, 3E-2, 3E-3		1:30	Žura Žaja I.	P_fiziologija
11/11/2025	12:00	14:30	Physiology of Domestic Animals I	v07 Blood smears for CBC and reticulocyte count	3E-3		2:30	Nastavnici na predmetu	V_fiziologija
13/11/2025	12:00	14:30	Physiology of Domestic Animals I	v07 Blood smears for CBC and reticulocyte count	3E-1, 3E-2		2:30	Nastavnici na predmetu	V_fiziologija
14/11/2025	8:15	10:45	Physiology of Domestic Animals I	v08 Nervous system I	3E-1, 3E-2		2:30	Nastavnici na predmetu	R_fiziologija, R_patofiziologija

Activities - Physiology of Domestic Animals I (4/6)

Start Dat	Start	End	Subject	Subject	Group	Note	Length	Instructor	Room
14/11/2025	11:00	13:30	Physiology of Domestic Animals I	v08 Nervous system I	3E-3		2:30	Nastavnici na predmetu	R_fiziologija, R_patofiziologija
14/11/2025	14:00	15:30	Physiology of Domestic Animals I	p10 Skeletal muscles, summation of muscle force	3E-1, 3E-2, 3E-3		1:30	Pađen L.	P_fiziologija
24/11/2025	12:00	15:15	Physiology of Domestic Animals I	V09 Differntisl blood count	3E-3		3:15	Nastavnici na predmetu	V_fiziologija
25/11/2025	12:00	15:15	Physiology of Domestic Animals I	V09 Differntisl blood count	3E-1, 3E-2		3:15	Nastavnici na predmetu	V_fiziologija
26/11/2025	12:00	13:30	Physiology of Domestic Animals I	p11 Smooth muscles, muscle activity	3E-1, 3E-2, 3E-3		1:30	Pađen L.	P_fiziologija
27/11/2025	13:30	15:00	Physiology of Domestic Animals I	p12 General endocrinology	3E-1, 3E-2, 3E-3		1:30	Pađen L.	P_fiziologija
01/12/2025	11:45	14:15	Physiology of Domestic Animals I	V10 Blood groups of dogs and cats	3E-1, 3E-2		2:30	Nastavnici na predmetu	V_fiziologija
03/12/2025	11:15	13:45	Physiology of Domestic Animals I	V10 Blood groups of dogs and cats	3E-3		2:30	Nastavnici na predmetu	V_fiziologija
04/12/2025	8:15	9:45	Physiology of Domestic Animals I	p13 Hypothalamic and pituitary hormones	3E-1, 3E-2, 3E-3		1:30	Pađen L.	P_fiziologija
08/12/2025	9:15	10:45	Physiology of Domestic Animals I	p14 Thyroid and adrenal gland hormones	3E-1, 3E-2, 3E-3		1:30	Shek - Vugrovečki A.	P_fiziologija

Activities - Physiology of Domestic Animals I (5/6)

Start Dat	Start	End	Subject	Subject	Group	Note	Length	Instructor	Room
10/12/2025	9:00	12:15	Physiology of Domestic Animals I	v11 Nervous system II and EEG	3E-3		3:15	Nastavnici na predmetu	R_fiziologija, R_patofiziologija, V_fiziologija
11/12/2025	9:45	13:00	Physiology of Domestic Animals I	v11 Nervous system II and EEG	3E-1, 3E-2		3:15	Nastavnici na predmetu	R_fiziologija, R_patofiziologija, V_fiziologija
12/12/2025	8:15	9:45	Physiology of Domestic Animals I	p15 Pancreaticand parathyroid hormones	3E-1, 3E-2, 3E-3		1:30	Pađen L.	P_fiziologija
12/12/2025	15:15	16:00	3 ENG	Physiology of Domestic Animals I		Colloquium 2nd	0:45	Shek - Vugrovečki A.	P_fiziologija
15/12/2025	11:00	13:30	Physiology of Domestic Animals I	v12 Hematology counter, hematological tests	3E-3		2:30	Nastavnici na predmetu	V_fiziologija
17/12/2025	11:00	13:30	Physiology of Domestic Animals I	v12 Hematology counter, hematological tests	3E-1, 3E-2		2:30	Nastavnici na predmetu	V_fiziologija
18/12/2025	8:15	10:45	Physiology of Domestic Animals I	v13 Thyroid hormones, metabolism, insulin	3E-3		2:30	Nastavnici na predmetu	R_fiziologija, R_patofiziologija

Activities - Physiology of Domestic Animals I (6/6)

Start Dat	Start	End	Subject	Subject	Group	Note	Length	Instructor	Room
18/12/2025	13:45	16:15	Physiology of Domestic Animals I	v13 Thyroid hormones, metabolism, insulin	3E-1, 3E-2		2:30	Nastavnici na predmetu	R_fiziologija, R_patofiziologija
19/12/2025	10:00	11:30	Physiology of Domestic Animals I	p16 Sex and tissue hormones	3E-1, 3E-2, 3E-3		1:30	Žura Žaja I.	P_fiziologija
07/01/2026	8:00	11:15	Physiology of Domestic Animals I	v14 Muscular system and EMG	3E-1, 3E-2		3:15	Nastavnici na predmetu	R_fiziologija, R_patofiziologija, V_fiziologija
09/01/2026	8:00	11:15	Physiology of Domestic Animals I	v14 Muscular system and EMG	3E-3		3:15	Nastavnici na predmetu	R_fiziologija, R_patofiziologija, V_fiziologija
13/01/2026	8:30	11:00	Physiology of Domestic Animals I	v15 Hormone replacement therapy and cortisol	3E-3		2:30	Nastavnici na predmetu	R_fiziologija, R_patofiziologija
15/01/2026	8:30	11:00	Physiology of Domestic Animals I	v15 Hormone replacement therapy and cortisol	3E-1, 3E-2		2:30	Nastavnici na predmetu	R_fiziologija, R_patofiziologija
16/01/2026	8:15	9:00	3 ENG	Physiology of Domestic Animals I		Colloquium 1st	0:45	Shek - Vugrovečki A.	P_fiziologija
Total: 48							106:30		

STUDENT RESPONSABILITIES

Lecture attendance	During semester a student must attend 15 lecture lessons to gain minimal 3 points. The maximum number of points from this evaluation element is 6.
Seminars attendance	NA
Practicals attendance	During semester a student must attend 36 exercise lessons to gain minimal 8 points. The maximum number of points from this evaluation element is 12. When the student upon the completion of teaching in the first try makes up for nonattendance of an exercise (excused and approved), points are added to the ones gained. If the student makes up for the unattended lessons in further tries the points do not count.
Active participation in seminars and practicals	During the practical part of the lesson (exercises), which is 50 hours of teaching, the student must successfully complete scheduled tasks. During the course, the student's activity is evaluated during the exercises. For six positive answers, the student earns an additional 5 points and 3 points for determining complete blood analysis. During the practical part of the course, the student must achieve a minimum of 5 points and can achieve the maximum of 10 points
Final exam	The final exam starts with a student's short analysis of results gained from the first four evaluation elements. At the final exam the student answers the questions in oral form. The final exam comprises the material from endocrinology, and it estimates the capability of a student to connect physiological processes. The maximum number of points gained at the final exam is 40 points. Regardless of the number of points gained from the first four evaluation elements, the student must show minimal knowledge at the final exam to earn minimal 24 points. In case the student is not satisfied with the final part of the exam, the lecturer determines time for re-examination.
Examination requirements	Student requirements are defined in the Regulations on the Integrated Undergraduate and Graduate Study of Veterinary Medicine (2024). Given the above, the student must acquire a minimum number of points from all assessment elements to take the final exam. Regulations On Intergraduate And Graduate Studies, Article 41: 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)	During the course of the Physiology of Domestic Animals I two assessments of knowledge (colloquia) will be organized. The first colloquium includes basic physiology and physiology of the blood, and the second examination involves the physiology of the muscular and nervous system. At each colloquium, the student must achieve at least 10 points to achieve the required 20 points. The maximum number of points scored from this grading element is 32 points. A student who does not achieve the necessary points during the course instruction is entitled to three times access to a correctional colloquium that will be organized in certain terms. The terms of the colloquium from the Physiology of Domestic Animals I in the academic year 2025/2026 Colloquia will be held in the Department of Physiology and radiobiology, online on Merlin Basic physiology and blood physiology 12/12/2025 15:15 - 16:00h Nervous and muscle system physiology 16/01/2026 08:15 - 09:00h The terms of repeated colloquium from the Physiology of Domestic Animals I during the winter semester and the winter exam period of the academic year will be held according to the following schedule: 23/01/2026 10-11h 30/01/2026 10- 11h 06/02/2026 10- 11h
Final exams (dates)	5/2/2026 17/2/2026
Form of final exam	oral exam

LITERATURE

Obligatory literature	1. Sjaastad Ø. V., O. Sand, K. Hove: Physiology of Domestic Animals. Scandinavianveterinary press, 2010. 2. Cunningham, J. G.: Textbook of veterinary physiology. 3rd edition, W. B. SaundersCompany, 2002. 3. Dukes' physiology of domestic animals (William O. Reece, Ed.). The 12th ed. CornellUniversity Press. Ithaca and London, 2004. 4. Vander, A. J., J. H. Sherman, D. S. Luciano: Human physiology. The mechanisms of bodyfunction. The 5th ed. McGraw-Hill Publishing Comp. New York, 1990.
Supplementary literature	1. Feldman, B. F., J. G. Zinkl, N. C. Jain: Schalm's Veterinary Hematology. 5th ed.Lippincott Williams & Wilkins, 2000. 2. Kaneko, J. J., J. W. Harvey, M. L. Bruss: Clinical Biochemistry of Domestic Animals.Academic Press. San Diego, Boston, New York, Sydney, Tokyo, 1987. 3. Payne, J. M., S. Payne: The Metabolic Profile Test. Oxford University Press. Oxford, NewYork, Tokyo, 1987. 4. Schmidt-Nielsen, K.: Animal Physiology. Adaptation and Environment. CambridgeUniversity Press, 1997.

OBJECTIVES AND LEARNING OUTCOMES

Course objectives	The aim of the classes in the subject Physiology of domestic animals I. is to apply the acquired knowledge in physics, biology, chemistry, biochemistry, histology and anatomy, the student acquires knowledge and skills about the normal function of individual organs and tissues, that is, the organism. Students are trained through lectures, seminars and exercises for progressive development of knowledge and understanding of basic principles and facts about physiological processes from cells to the entire organism. Especially through understanding and connecting regulatory mechanisms, maintenance of homeostasis, acid-base balance, blood physiology, physiology of the nervous and muscular system and hormone functions. In addition to the aforementioned basic knowledge, students acquire and develop certain skills and abilities in taking, preparing and examining different biological samples, they develop the ability to explain and connect information and conclusions, the ability to search for data from the literature and to understand contemporary ones trends in veterinary physiology.
-------------------	---

PHYSIOLOGY OF DOMESTIC ANIMALS I

Learning outcomes	After successfully mastering the subject Physiology of Domestic Animals I, the student will be able to: - explain and differentiate the basic principles and facts of physiological processes from the cell to the entire organism - explain the physiological functions of the blood, nervous and muscular systems, and hormones - to argue the importance of constant maintenance of blood, nervous and muscle tissue functions - integrate regulatory mechanisms, maintenance of homeostasis and acid-base balance - master the skills of obtaining and analyzing whole blood, plasma, serum - compare whether the obtained values correspond to the physiological limits for certain types of domestic animals - carry out measurements of indicators of the physiological functions of cells in a virtual and real environment
-------------------	--

GRADING OF STUDENT WORK

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

Course leader

Ana Štjek Wagonj

Head of organizational unit

u.Š. Ana Štjek Wagonj

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