

Course: Biochemistry in Veterinary Medicine

UNIVERSITY OF ZAGREB
FACULTY OF VETERINARY MEDICINE
Heinzelova 55
Tel. 01/2390301....
Division: Pre-Clinical Sciences Division
Organizational unit: Chemistry and Biochemistry
E-mail of the course leader: rrafaj@vef.hr
Register No of the organisational unit:
Zagreb, 05.02.2025.

		
197794	REPUBLIKA HRVATSKA	
Veterinarski fakultet u Zagrebu		
Primljeno:	06.02.2025	
Klasifikacijska oznaka	Org. jed.	
602-04/24-22/38	251-61-41; 251-61-32;	
Uredžbeni broj	Prilozi	Vrijednost
251-61-04/16-25-123	0	-

COURSE SYLLABUS

Course name: Biochemistry in Veterinary Medicine
Academic year 2024/2025

Course leader: Full Prof Renata Barić Rafaj
Deputy course leader: Assist. Prof Josipa Kuleš

Teachers: Full Prof Renata Barić Rafaj, Assist. Prof Josipa Kuleš

First day of classes: 04/3/2025
Last day of classes: 29/5/2025

Activities - Biochemistry in Veterinary Medicine (1/3)

Start Date	Start T	End Ti	Subject	Group	Note	Length	Instructor	Room
04/03/2025	8:00	9:30	p01 Aminoacids	2E-1, 2E-2, 2E-3		1:30		P_kemija
05/03/2025	15:30	16:15	s01 Modifications	2E-1, 2E-2, 2E-3, P_kemija		0:45		P_kemija
07/03/2025	9:30	11:45	v01 Separation	2E-3		2:15	Kuleš J.	P_kemija
07/03/2025	13:30	15:45	v01 Separation	2E-1, 2E-2		2:15	Kuleš J.	P_kemija
10/03/2025	13:00	14:30	p02 Proteins	2E-1, 2E-2, 2E-3		1:30		P_kemija
10/03/2025	14:45	15:30	s02 Proteins	2E-1, 2E-2, 2E-3, P_kemija		0:45		P_kemija
13/03/2025	10:00	12:15	v02 Proteins	2E-3		2:15	Kuleš J.	P_kemija
13/03/2025	12:30	14:45	v02 Proteins	2E-1, 2E-2		2:15	Kuleš J.	P_kemija
18/03/2025	15:00	16:30	p03 Enzymes	2E-1, 2E-2, 2E-3		1:30		P_kemija
19/03/2025	8:00	10:15	v03 Enzims	2E-3		2:15	Kuleš J.	P_kemija
19/03/2025	13:45	16:00	v03 Enzims	2E-1, 2E-2		2:15	Kuleš J.	P_kemija
21/03/2025	8:45	9:30	s03 Enzymes	2E-1, 2E-2, 2E-3		0:45		P_kemija
21/03/2025	13:30	15:00	p04 Hemoglobin	2E-1, 2E-2, 2E-3		1:30		P_kemija
24/03/2025	11:45	14:00	p05 Collagen, Coagulation,Signals	2E-1, 2E-2, 2E-3		2:15		P_kemija
25/03/2025	8:15	9:45	p06 ATP, Glycolysis	2E-1, 2E-2, 2E-3		1:30		P_kemija
26/03/2025	10:15	12:30	v04 Hemoglobin	2E-1, 2E-2		2:15	Kuleš J.	P_kemija
27/03/2025	13:15	15:30	v04 Hemoglobin	2E-3		2:15	Kuleš J.	P_kemija
28/03/2025	8:00	8:45	s04 Hemoglobin	2E-1, 2E-2, 2E-3		0:45		P_kemija
01/04/2025	8:10	9:40	p07 Glycolysis	2E-1, 2E-2, 2E-3		1:30		P_kemija
02/04/2025	10:00	10:45	s05 Glycolysis	2E-1, 2E-2, 2E-3, P_kemija		0:45		P_kemija

Activities - Biochemistry in Veterinary Medicine (2/3)

Start Date	Start T	End Ti	Subject	Group	Note	Length	Instructor	Room
03/04/2025	8:15	9:45	p08 Citric acid cycle	2E-1, 2E-2, 2E-3		1:30		P_kemija
04/04/2025	11:30	13:45	v05 Glucose	2E-1, 2E-2		2:15		P_kemija
04/04/2025	14:00	16:15	v05 Glucose	2E-3		2:15		P_kemija
09/04/2025	13:30	15:45	p09 Oxidative phosphorylation	2E-1, 2E-2, 2E-3		2:15		P_kemija
10/04/2025	9:45	10:30	s06 Regulation	2E-1, 2E-2, 2E-3, P_kemija		0:45		P_kemija
11/04/2025	8:15	9:45	p10 Glycogen, Pentose Pathway	2E-1, 2E-2, 2E-3		1:30		P_kemija
11/04/2025	10:00	11:30	v06 Glycogen	2E-3		1:30		P_kemija
11/04/2025	12:00	13:30	v06 Glycogen	2E-1, 2E-2		1:30		P_kemija
14/04/2025	9:15	10:00	s07 Inhibitors	2E-1, 2E-2, 2E-3, P_kemija		0:45		P_kemija
15/04/2025	12:45	14:15	p11 Gluconeogen, Lipids	2E-1, 2E-2, 2E-3		1:30		P_kemija
16/04/2025	14:00	14:45	s08 Glutation	2E-1, 2E-2, 2E-3, P_kemija		0:45		P_kemija
22/04/2025	8:15	9:00	s09 cAMP	2E-1, 2E-2, 2E-3, P_kemija		0:45		P_kemija
22/04/2025	11:15	12:45	p12 Lipids, Ketones	2E-1, 2E-2, 2E-3		1:30		P_kemija
24/04/2025	8:00	10:15	v07 Lipids	2E-1, 2E-2		2:15		P_kemija
25/04/2025	10:30	12:45	v07 Lipids	2E-3		2:15		P_kemija
07/05/2025	12:00	13:30	p13 Urea cycle	2E-1, 2E-2, 2E-3		1:30		P_kemija
13/05/2025	15:00	15:45	s10 Ketones	2E-1, 2E-2, 2E-3		0:45		P_kemija
15/05/2025	8:15	9:45	v08 Urea	2E-3		1:30		P_kemija
15/05/2025	10:00	11:30	v08 Urea	2E-1, 2E-2		1:30		P_kemija

Activities - Biochemistry in Veterinary Medicine (3/3)								
Start Date	Start T	End Ti	Subject	Group	Note	Length	Instructor	Room
19/05/2025	8:15	9:45	v09 Urine	2E-1, 2E-2		1:30		P_kemija
19/05/2025	10:00	11:30	v09 Urine	2E-3		1:30		P_kemija
20/05/2025	10:15	11:00	s11 Aminoacids	2E-1, 2E-2, 2E-3		0:45		P_kemija
21/05/2025	10:45	11:30	s12 Vitamins	2E-1, 2E-2, 2E-3		0:45		P_kemija
22/05/2025	8:00	10:15	p14 Integration of metabolism	2E-1, 2E-2, 2E-3		2:15		P_kemija
23/05/2025	12:15	13:00	s13 Integration	2E-1, 2E-2, 2E-3		0:45		P_kemija
26/05/2025	12:15	13:00	s14 ATP	2E-1, 2E-2, 2E-3		0:45		P_kemija
28/05/2025	13:00	15:15	v10 LDH	2E-3		2:15		P_kemija
29/05/2025	11:00	13:15	v10 LDH	2E-1, 2E-2		2:15		P_kemija
Total: 48						74:15		

Start Date	Start T	End Ti	Subject	Group	Note	Length	Instructor	Room
19/05/2025	8:15	9:45	v09 Urine	2E-1, 2E-2		1:30		P_kemija
19/05/2025	10:00	11:30	v09 Urine	2E-3		1:30		P_kemija
20/05/2025	10:15	11:00	s11 Aminoacids	2E-1, 2E-2, 2E-3		0:45		P_kemija
21/05/2025	10:45	11:30	s12 Vitamins	2E-1, 2E-2, 2E-3		0:45		P_kemija
22/05/2025	8:00	10:15	p14 Integration of metabolism	2E-1, 2E-2, 2E-3		2:15		P_kemija
23/05/2025	12:15	13:00	s13 Integration	2E-1, 2E-2, 2E-3		0:45		P_kemija
26/05/2025	12:15	13:00	s14 ATP	2E-1, 2E-2, 2E-3		0:45		P_kemija
28/05/2025	13:00	15:15	v10 LDH	2E-3		2:15		P_kemija
29/05/2025	11:00	13:15	v10 LDH	2E-1, 2E-2		2:15		P_kemija
Total: 48						74:15		

STUDENT OBLIGATIONS

Lecture attendance	Teaching takes place during 14 lectures. The attendance at each lecture is scored at 0.43 points ($0.43 \times 14L = 6$ points maximum, $0.43 \times 7L = 3$ points minimum).
Seminars attendance	14 seminars: the attendance is scored at 0.43 points. ($0.43 \times 14S = 6$ points maximum; $0.43 \times 9S = 4$ points minimum).
Practicals attendance	Students perform a total of 10 practicals, and the presence is scored with 0.6 points ($0.6 \times 10P = 6$ points maximum, $0.6 \times 7P = 4$ points minimum).
Active participation in seminars and practicals	Practice exercises: a correctly performed exercise during 10 exercises is scored with 0.2 points, and the correct answers to 3 questions are scored with 0.3 points ($0.5 \times 10P = 5$ points maximum, 2.5 points minimum). Seminar activity is evaluated with correct answers to a questions during 4 seminars, a total of 1.25 points ($1.25 \times 4 = 5$ points maximum, 2.5 points minimum).
Final exam	It consists of a written exam containing 20 questions. The maximum number of points that can be achieved on the final exam is 40 and a minimum is 24. To attend to the exam, students have to pass colloquium with minimal 20 points (sum of all 3 colloquiums)
Examination requirements	Student requirements are defined in the Regulations on the Integrated Undergraduate and Graduate Study of Veterinary Medicine (2022). Given the above, the student must acquire a minimum number of points from all assessment elements in order 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)	1.COLL =4/4/2025 G 1,2,3 2.COLL = 24/4/2025 G 1,2 25/4/2025 G 3 + correction of 1 st coll 3.COLL = 28/5/2025 G 3 29/5/2025 G 1,2 + correction of 1 st and 2 nd coll Correction 11.6.2025., 01.07.2025.
Final exams (dates)	11.06.2025., 01.07.2025.,02.09.2025., 16.09.2025.
Form of final exam	Written

LITERATURE

Obligatory literature	BERG J. M., TYMOCZKO J. L., , STRYER L. (2014): Biochemistry, 7. Ed. Školska knjiga, Zagreb
Optional literature	DEVLIN, T. M. (2006): Textbook of Biochemistry with Clinical Correlations, A. J. Willey and sons, New York

OBJECTIVES AND LEARNING OUTCOMES

Course objectives	Adopting knowledge about the structure and function of the most important proteins, carbohydrates and fats in the body, understanding the course and the connection of the metabolic pathways and how to regulate them
Learning outcomes	After successfully passing the course student will be able to: 1. to define the structure of most proteins, carbohydrates and fats in the body, and the importance of certain types of chemical bonds in metabolic processes 2. to explain the correlation of structure and main function of most proteins, carbohydrates and fats 3. to show the sequence of biochemical changes in the major metabolic pathways, explain the effect of the major enzyme systems in catalysis of certain reactions 4. to analyse the ways of regulation of biological activity 5. to apply a simple biochemical methods for measuring analytes in biological samples 6. to understand the connection of metabolic pathways and accept the theoretical basis for the selection and evaluation to the results of varuous laboratory measurements 7. to understand changing of metabolic pathways using various treatment procedures

Course: Biochemistry in Veterinary Medicine

GRADING SCHEME

<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

Prof. dr. sc. Renata Barić Rafaj



Head of organizational unit:

Prof. dr. sc. Renata Barić Rafaj



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