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,22/01/2024

COURSE SYLLABUS

Course name: Biochemistry in Veterinary Medicine
Academic year 2023/2024

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:28/2/2024
Last day of classes: 6/6/2024

Activities - Biochemistry in Veterinary Medicine (1/4)

	Start T	End Ti	Subject	Group	Note	Length	Instructor	Room
28/02/2024	8:15	9:45	p01 Aminoacids	2E-1, 2E-2, 2E-3		1:30	Baric Rafaj R.	P_kemija
29/02/2024	15:00	15:45	s01 Modifications	2E-1, 2E-2, 2E-3, P_kemija		0:45	Baric Rafaj R.	P_kemija
01/03/2024	11:00	13:15	v01 Separation	2E-1, 2E-2, V_kemija		2:15	Baric Rafaj R., Kuleš J.	P_kemija
01/03/2024	13:30	15:45	v01 Separation	2E-3, V_kemija		2:15	Baric Rafaj R., Kuleš J.	P_kemija
04/03/2024	12:30	14:00	p02 Proteins	2E-1, 2E-2, 2E-3		1:30	Baric Rafaj R.	P_kemija
05/03/2024	15:15	16:00	s02 Proteins	2E-1, 2E-2, 2E-3, P_kemija		0:45	Baric Rafaj R.	P_kemija
07/03/2024	10:00	12:15	v02 Proteins	2E-1, 2E-2, V_kemija		2:15	Baric Rafaj R., Kuleš J.	P_kemija
07/03/2024	12:30	14:45	v02 Proteins	2E-3, V_kemija		2:15	Baric Rafaj R., Kuleš J.	P_kemija
12/03/2024	8:15	9:45	p03 Enzymes	2E-1, 2E-2, 2E-3		1:30	Baric Rafaj R.	P_kemija
13/03/2024	8:15	10:30	v03 Enzims	2E-1, 2E-2, V_kemija		2:15	Baric Rafaj R., Kuleš J.	P_kemija
13/03/2024	11:00	13:15	v03 Enzims	2E-3, V_kemija		2:15	Baric Rafaj R., Kuleš J.	P_kemija
14/03/2024	9:00	9:45	s03 Enzymes	2E-1, 2E-2, 2E-3, P_kemija		0:45	Baric Rafaj R.	P_kemija
15/03/2024	11:00	12:30	p04 Hemoglobin	2E-1, 2E-2, 2E-3		1:30	Baric Rafaj R.	P_kemija
19/03/2024	8:15	10:30	p05 Collagen, Coagulation,Signals	2E-1, 2E-2, 2E-3		2:15	Baric Rafaj R.	P_kemija
20/03/2024	8:00	9:30	p06 ATP, Glycolysis	2E-1, 2E-2, 2E-3		1:30	Baric Rafaj R.	P_kemija

Activities - Biochemistry in Veterinary Medicine (2/4)

	Start T	End Ti	Subject	Group	Note	Length	Instructor	Room
20/03/2024	9:45	12:00	v04 Hemoglobin	2E-1, 2E-2, R_stocarstvo velika		2:15	Baric Rafaj R., Kuleš J.	P_kemija
21/03/2024	10:00	12:15	v04 Hemoglobin	2E-3, R_stocarstvo velika		2:15	Baric Rafaj R., Kuleš J.	P_kemija
21/03/2024	12:30	13:15	s04 Hemoglobin	2E-1, 2E-2, 2E-3, P_kemija		0:45	Baric Rafaj R.	P_kemija
27/03/2024	8:15	9:45	p07 Glycolysis	2E-1, 2E-2, 2E-3		1:30	Baric Rafaj R.	P_kemija
27/03/2024	12:00	12:45	s05 Glycolysis	2E-1, 2E-2, 2E-3, P_kemija		0:45	Baric Rafaj R.	P_kemija
02/04/2024	12:00	13:30	p08 Citric acid cycle	2E-1, 2E-2, 2E-3		1:30	Baric Rafaj R.	P_kemija
03/04/2024	10:00	12:15	v05 Glucose	2E-3, V_kemija		2:15	Baric Rafaj R.	P_kemija
03/04/2024	12:30	14:45	v05 Glucose	2E-1, 2E-2, V_kemija		2:15	Baric Rafaj R.	P_kemija
08/04/2024	10:30	12:45	p09 Oxidative phosphorylation	2E-1, 2E-2, 2E-3		2:15	Baric Rafaj R.	P_kemija
09/04/2024	9:15	10:00	s06 Regulation	2E-1, 2E-2, 2E-3, P_kemija		0:45	Baric Rafaj R.	P_kemija
12/04/2024	8:15	9:45	p10 Glycogen, Pentose Pathway	2E-1, 2E-2, 2E-3		1:30	Baric Rafaj R.	P_kemija
15/04/2024	10:30	12:00	v06 Glycogen	2E-1, 2E-2, V_kemija		1:30	Baric Rafaj R.	P_kemija
15/04/2024	12:15	13:00	s07 Inhibitors	2E-1, 2E-2, 2E-3, P_kemija		0:45	Baric Rafaj R.	P_kemija
15/04/2024	13:15	14:45	v06 Glycogen	2E-3, V_kemija		1:30	Baric Rafaj R.	P_kemija
17/04/2024	10:00	11:30	p11 Gluconeogen, Lipids	2E-1, 2E-2, 2E-3		1:30	Baric Rafaj R.	P_kemija
19/04/2024	10:00	10:45	s08 Glutation	2E-1, 2E-2, 2E-3, P_kemija		0:45	Baric Rafaj R.	P_kemija

Activities - Biochemistry in Veterinary Medicine (3/4)

	Start T	End Ti	Subject	Group	Note	Length	Instructor	Room
23/04/2024	10:15	11:00	s09 cAMP	2E-1, 2E-2, 2E-3, P_kemija		0:45	Baric Rafaj R.	P_kemija
24/04/2024	10:00	11:30	p12 Lipids, Ketones	2E-1, 2E-2, 2E-3		1:30	Baric Rafaj R.	P_kemija
25/04/2024	13:00	15:15	v07 Lipids	2E-3, V_kemija		2:15	Baric Rafaj R.	P_kemija
26/04/2024	13:30	15:45	v07 Lipids	2E-1, 2E-2, V_kemija		2:15	Baric Rafaj R.	P_kemija
29/04/2024	13:00	14:30	p13 Urea cycle	2E-1, 2E-2, 2E-3		1:30	Baric Rafaj R.	P_kemija
30/04/2024	12:45	13:30	s10 Ketones	2E-1, 2E-2, 2E-3, P_kemija		0:45	Baric Rafaj R.	P_kemija
06/05/2024	8:15	9:45	v08 Urea	2E-3, V_kemija		1:30	Baric Rafaj R.	P_kemija
06/05/2024	11:45	13:15	v08 Urea	2E-1, 2E-2, V_kemija		1:30	Baric Rafaj R.	P_kemija
07/05/2024	8:15	9:45	v09 Urine	2E-3, V_kemija		1:30	Baric Rafaj R.	P_kemija
07/05/2024	11:45	13:15	v09 Urine	2E-1, 2E-2, P_kemija, V_kemija		1:30	Baric Rafaj R.	P_kemija
08/05/2024	8:00	8:45	s11 Aminoacids	2E-1, 2E-2, 2E-3, P_kemija		0:45	Baric Rafaj R.	P_kemija
09/05/2024	10:00	10:45	s12 Vitamins	2E-1, 2E-2, 2E-3, P_kemija		0:45	Baric Rafaj R.	P_kemija
29/05/2024	8:15	10:30	p14 Integration of metabolism	2E-1, 2E-2, 2E-3		2:15	Baric Rafaj R.	P_kemija
03/06/2024	12:30	13:15	s13 Integration	2E-1, 2E-2, 2E-3, P_kemija		0:45	Baric Rafaj R.	P_kemija
04/06/2024	12:30	13:15	s14 ATP	2E-1, 2E-2, 2E-3, P_kemija		0:45	Baric Rafaj R.	P_kemija
05/06/2024	8:15	10:30	v10 LDH	2E-1, 2E-2, V_kemija		2:15	Baric Rafaj R.	P_kemija
06/06/2024	8:15	10:30	v10 LDH	2E-3, V_kemija		2:15	Baric Rafaj R.	P_kemija

Activities - Biochemistry in Veterinary Medicine (4/4)

Start T	End Ti	Subject	Group	Note	Length	Instructor	Room
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 x 14L = 6 points maximum, 0.43 x **7L** = 3 points minimum).
Seminars attendance	14 seminars: the attendance is scored at 0.43 points. (0.43 x 14S = 6 points maximum; 0.43 x **9S** = 4 points minimum).
Practicals attendance	Students perform a total of 10 practicals, and the presence is scored with 0.6 points (0.6 x 10P = 6 points maximum, 0.6 x **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 (0.5x10P = 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 x 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 =3/4/2024 G3, 3/4/2024 G1,2 2.COLL = 25/4/2024 G 3, 26/4/2024 G1,2 3.COLL =5/6/2024 G1,2 6/6/2024 G3 14.6.2024.
Final exams (dates)	10.4.2024., 14.6.2024., 28.6.2024., 8.7.2024., 4.9.2024., 18.9.2024.....:::::::
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

GRADING SCHEME

Points	*Grade*
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:

Assist. Prof Luka Krstulović

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