UNIVERSITY OF ZAGREB
FACULTY OF VETERINARY MEDICINE
Heinzelova 55
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Division: Department of Chemistry and Biochemistry
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Register no.:
File no.:
Zagreb, 11. Jan 2019.

COURSE SYLLABUS

Course name: Biochemistry in Veterinary Medicine

Academic year 2018-19

Course leader: Prof. dr. sc. Renata Barić Rafaj

Teachers: Prof. dr. sc. Renata Barić Rafaj

Associate teachers: Andrea Tumpa, mag. med. biochem

First day of classes: 25.02.19.

Last day of classes: 23.05.19.

Timetable for LECTURES academic year 2018-2019

LECTURES				
Date	**Methodological unit**	**Teacher**	**Location / time**	**Literature**
25.02.18.	**L1** Aminoacids	Prof. dr. sc. Barić Rafaj	BC, 12-14h	Stryer: Biochemistry
26.02.18.	**L2** Proteins	Prof. dr. sc. Barić Rafaj	PB, 08-10h	Stryer: Biochemistry
06.03.19.	**L3** Enzymes	Prof. dr. sc. Barić Rafaj	PB, 12-14h	Stryer: Biochemistry
13.03.19.	**L4** Hemoglobin	Prof. dr. sc. Barić Rafaj	BC, 12-14h	Stryer: Biochemistry
18.03.19.	**L5** Collagen, Coagulation,Signals	Prof. dr. sc. Barić Rafaj	BC, 10-12h	Stryer: Biochemistry
19.03.19.	**L6** ATP, Glycolysis	Prof. dr. sc. Barić Rafaj	BC, 14-16h	Stryer: Biochemistry
20.03.19.	**L7** Glycolysis	Prof. dr. sc. Barić Rafaj	BC, 10-12h	Stryer: Biochemistry
25.03.19.	**L8** Citric acid cycle	Prof. dr. sc. Barić Rafaj	BC, 12.30-14h	Stryer: Biochemistry
01.04.19.	**L9** Oxidative phosphorilation	Prof. dr. sc. Barić Rafaj	BC, 12-14h	Stryer: Biochemistry
02.04.19.	**L10** Gluconeogenesys, Glycogen	Prof. dr. sc. Barić Rafaj	FJ, 11-13h	Stryer: Biochemistry
16.04. 19.	**L11** Pentose Pathway, Lipids	Prof. dr. sc. Barić Rafaj	BC, 10-12h	Stryer: Biochemistry
17.04.19.	**L12** Lipids, Ketones	Prof. dr. sc. Barić Rafaj	BC, 14-16h	Stryer: Biochemistry
08.05.19.	**L13** Urea cycle	Prof. dr. sc. Barić Rafaj	BC, 10-12h	Stryer: Biochemistry
14.05.19.	**L14** Integration of metabolism	Prof. dr. sc. Barić Rafaj	BC, 14-16h	Stryer: Biochemistry

BC = Department of Chemistry and Biochemistry
PB = Department of Physics and Biophysics
FJ = Department of Forensic and Judicial Veterinary Medicine

Timetable for SEMINARS academic year 2017-2018

SEMINARS					
Date	**Methodological unit**	**Teacher**	**Group**	**Location / time**	**Literature**
27.02.19.	**S1** PTM	Prof. dr. sc. Barić Rafaj		PB, 12-13	Script: Seminars
27.02.19.	**S2** Proteins	Prof. dr. sc. Barić Rafaj		PB, 13-14	Script: Seminars
06.03.19.	**S3** Mich. Menten kinetics	Prof. dr. sc. Barić Rafaj		PB, 14-15	Script: Seminars
14.03.19.	**S4** Degradation of Hb	Prof. dr. sc. Barić Rafaj		BC, 10-11	Script: Seminars
21.03.19.	**S5** Anaerobic glycolysis	Prof. dr. sc. Barić Rafaj		BC, 11-12	Script: Seminars
02.04.19.	**S6** Inhibitors of el. chain	Prof. dr. sc. Barić Rafaj		FJ, 10-11	Script: Seminars
17.04.19.	**S7** Glutathione	Prof. dr. sc. Barić Rafaj		BC, 10-11	Script: Seminars
18.04.19.	**S8** Ketones	Prof. dr. sc. Barić Rafaj		BC, 10-11	Script: Seminars
30.04.19.	**S9** cAMP	Prof. dr. sc. Barić Rafaj		BC, 14-15	Script: Seminars
10.05.19.	**S10** Derivates of AA	Prof. dr. sc. Barić Rafaj		BC, 14-15	Script: Seminars
16.05.19.	**S11** Vitamins	Prof. dr. sc. Barić Rafaj		BC, 11-12	Script: Seminars
20.05.19.	**S12** Met. spec. of organs	Prof. dr. sc. Barić Rafaj		BC, 13-14	Script: Seminars

PB = Department of Physics and Biophysics
FJ = Department of Forensic and Judicial Veterinary Medicine
BC = Department of Chemistry and Biochemistry

Timetable for PRACTICALS academic year 2017-2018

PRACTICALS						
Date	**Methodological unit**	**Teacher**	**Type of practical**	**Group**	**Location / time**	**Literature**
28.02.18.	**E1** Separation	Prof. dr. sc. Barić Rafaj A.Tumpa, mag. med.biochem.	lab	1,2	BCL, 11-14	Exercises - script
04.03.19.	**E2** Proteins	Prof. dr. sc. Barić Rafaj A.Tumpa, mag. med.biochem.	lab	1,2	PR(15min), BCL, 10-13	Exercises - script
07.03.19.	**E3** Enzymes L	Prof. dr. sc. Barić Rafaj A.Tumpa, mag. med.biochem.	lab	1,2	BCL, 08-11	Exercises - script
12.03.19.	**E** Enzymes C	Prof. dr. sc. Barić Rafaj	simulation	1	AH, 14-15	Exercises - script
12.03.19.	**E** Enzymes C	Prof. dr. sc. Barić Rafaj	simulation	2	AH, 15-16	Exercises - script
14.03.19.	**E4** Hemoglobin	Prof. dr. sc. Barić Rafaj A.Tumpa, mag. med.biochem.	lab	1,2	BCL, 11-14	Exercises - script
21.03.19.	**E5** Carbohydrates **MC, EC1**	Prof. dr. sc. Barić Rafaj A.Tumpa, mag. med.biochem.	lab	1,2	BCL, 12-15	Exercises - script
29.03.19.	**E** CAC	Prof. dr. sc. Barić Rafaj A.Tumpa, mag. med.biochem.	simulation	1,2	BCL, 12-13	Exercises - script
08.04.19.	**E6** Glycogen	Prof. dr. sc. Barić Rafaj A.Tumpa, mag. med.biochem.	lab	1,2	BCL, 10-13	Exercises - script
29.04.19.	**E7** Lipids **MC, EC2**	Prof. dr. sc. Barić Rafaj A.Tumpa, mag. med.biochem.	lab	1,2	BCL, 11-14	Exercises - script
13.05.19.	**E8** Urea	Prof. dr. sc. Barić Rafaj A.Tumpa, mag. med.biochem.	lab	1,2	BCL, 10-13	Exercises - script
17.05.18.	**E9** Urine	Prof. dr. sc. Barić Rafaj A.Tumpa, mag. med.biochem.	lab	1,2	BCL, 10-13	Exercises - script
23.05.19.	**E10** Integration, **MC, EC3**	Prof. dr. sc. Barić Rafaj	lab	1,2	BCL, 09-12	Exercises - script

		A.Tumpa, mag. med.biochem.				

BCL = Laboratory of the Department of Chemistry and Biochemistry
AH = Department of Animal Husbandry
MC = Mandatory colloquium
EC = Exam colloquium (optional)
PR = Physiology and Radiobiology

STUDENT OBLIGATIONS

Lecture attendance	Teaching takes place during 14 lectures. The attendance at each lecture is scored at 0.43 points (maximum 0.43x14 = 6 points, minimum 3).
Seminars attendance	12 seminars: the maximum number of points to be collected is 6 (0.5 x 12 seminars = 6 points maximum and minimum is 4).
Practicals attendance	Students perform a total of 12 exercises, and the presence of exercises is scored with 0.5 points (0.5 x 12 exercises = 6 points maximum, minimum 4 points).
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 (0.5x10 exercises = 5 points maximum, minimum 2.5 points). Seminar activity is evaluated with correct answers to a few short questions during 4 seminars, a total of 1.25 points (1.25 x 4 = maximum 5 points, minimum 2.5 points).
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 **MC** (min 20 points).
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; 30% of the seminars and 30 % of the exercises.

GRADING AND EVALUATING STUDENT WORK

Continuous knowledge-checking (mid-terms)	Continuous monitoring of students' activities will be done by 3 colloquiums - the first of which is mandatory (**MC**)– the students need to collect at least 20 points, which is a condition for admission to the exam. The maximum number of points is 32. During the course, students may also attend to 3 optional, exam colloquium (**EC** = supstitute for the exam), but just if they passed **MC**. If the student pass successfully all 3 exam colloquiums (minimum for every 24 points, maximum 40), the points are converted as a successfully passed biochemistry exam (if all others parameters are fullfiled). **MC** = 21.03.19., 29.04.19., 23.05.19., 10.06.19. **1.EC** = 21.03.19., **2.EC** = 29.04.19., **3.EC** = 23.05.19.
Final exams (dates)	21.03.19., 24.04.19., 20.05.19., 10.06. 19., 08.07.19. 12.07.19., 04.09.19., 18.09.19.
Form of final exam	written

LITERATURE

Obligatory literature	Jeremy M. Berg, John L. Tymoczko, Lubert **Stryer**, Biochemistry, 7. Ed. Publisher: W. H. Freeman
Optional literature	T. M. **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 completing the course, students will be able to judge the interconnections of the metabolic pathways and adopt the theoretical basis for selecting and evaluating the results of various laboratory diagnostic measurements as well as changing the course of the metabolic pathways by applying different treatment procedures in later work.

GRADING SCHEME

Points	*Grade*
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. dr. sc. Renata Barić Rafaj

Head of Department/Clinic:

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.

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

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