[Medicinski fakultet u Rijeci]

Curriculum
2022/2023

[Za kolegij]

Biochemistry II

Study program:	**Medical Studies in English (R)** [Sveučilišni integrirani prijediplomski i diplomski studij]
Department:	**[Katedra za medicinsku kemiju, biokemiju i kliničku kemiju]**
Course coordinator:	**prof. dr. sc. Detel Dijana, dr. med.**
Year of study:	**2**
ECTS:	**9**
Incentive ECTS:	**0 (0.00%)**
Foreign language:	**Possibility of teaching in a foreign language**

Course information:

Biochemistry II is a compulsory course at the second year of the Integrated Undergraduate and Graduate University Study of Medicine in English. It consists of 42 hours of lectures, 34 hours of seminars, and 34 hours of laboratory practicals, overall 110 hours (9 ECTS). Lectures and seminars are held in lecture halls of the Faculty of Medicine according to the course schedule. Laboratory practicals are held at the Department of Medical Chemistry, Biochemistry and Clinical Chemistry.

The goal of teaching Biochemistry is to understand how the human body works at the molecular level: how it uses energy, how it keeps its structure, how does it recognize different signals and respond to them, how it develops and grows, and how it protects against disease. The focus is on the integrative function of tissues and organs. This curriculum forms biochemical basis of physiology and offers the student the knowledge necessary for understanding biochemical basis of many pathobiochemical processes and diseases. Understanding these principles should help students and physicians in using the appropriate biochemical diagnostic procedure in order to improve health, in disease prevention, and in treatment of disorders at any human age.

Thorough the seminary part, students will gradually acquire and connect topics related to course aims. Students will acquire knowledge and experience in basic laboratory techniques and analytical clinical methods related to physiological and pathological states of the organism thorough laboratory practicals.

Content of the course

01. Introduction
02. Enzymes
03. Bioenergetics
04. Metabolism of carbohydrates
05. Metabolism of lipids
06. Structure and function of DNA and RNA
07. Hormon action and signal transduction
08. Biological membranes and cellular signaling
09. Metabolism of proteins and amino acids
10. Vitamins 11. Oxidative stress
12. Integration of Metabolism
13. Biomedical importance of serum enzymes and proteins

List of assigned reading:

1. VW. Rodwell et all.: Harpers Illustrated Biochemistry, 30th edition, The McGraw –Hill Education, New York 2015.
2. Č. Milin et. all.: Handbook for seminars and Laboratory practicals in Biochemistry II, Department of Chemistry and Biochemistry Faculty of Medicine, University of Rijeka, 2019.

List of optional reading:

1. JM. Berg et all: Biochemistry, 8 th edition, W.H. Freeman and Company, New York, 2012.
2. DL. Nelson, MM. Cox: Lehninger Principles of Biochemistry, Fourth Edition

Curriculum:

Student obligations:

Class attendance, including test attendance, is mandatory. Students may be absent from 30% of each form of teaching provided they have a justifiable cause. If a student is absent for more than 30% of the classes, he/she will have to re-enroll the course. Absence from seminars is compensated by an oral colloquium. Students are expected to actively participate in all aspects of the course, complete laboratory reports on time, and attend the examinations. Moreover, preparation of the course content, which is going to be discussed during seminars and laboratory practicals, is obligatory. During laboratory practicals, a student is obligated to wear a lab coat, to have tools (a wiping pad, a ruler, and a calculator), and the Handbook for seminars and practicals in Biochemistry II.

Exam (exam taking, description of the written/oral/practical part of the exam, point distribution, grading criteria):

Student grading will be conducted according to the current Ordinance on Studies of the University of Rijeka (approved by the Senate) and the Ordinance on Student Grading at the Faculty of Medicine in Rijeka (approved by the Faculty Council).

Assessment of the student work

Student work will be assessed and graded during the course and on the final exam. During the course, students may obtain a total of 100 grade points (credits). Students can achieve up to 70% of the final grade during the classes, and a maximum of 30% of the final grade at the final exam.

Evaluation of students' progress during classes, midterms, and the final exam in academic year 2022/2023 is shown in Table 1.

Table 1. Distribution of grade points in the course "Biochemistry II"

	Evaulation	**Grade points**
Midterm exams	Midterm exam I	20
	Midterm exam II	20
	Midterm exam III	20
	Total	**60**
Laboratory practicals	Completed practical and accepted written report	8
Seminars	Active participation	2
TOTAL		**70**
Final exam	Written exam (30 questions)	15
	Oral exam	15
	Total	**30**
TOTAL		**100**

Written midterm exams

During the semester, three written midterm exams are planned, which will include the content of lectures, seminars, and laboratory practicals. At each midterm exam, the maximum of grade points that a student can obtain is 18.

All written midterm exams consist of 40 multiple choice questions and are evaluated according to the criteria shown in Table 2. In order to obtain grade points, a student should have/gain a minimum 50% of correct answers on each midterm exam. Settled midterm exams are valid for the current academic year in which they are placed.

Table 2. Evaluation of written midterm exams I-III

% of correct answered questions	Grade points/credits
50.00 – 54.99	10
55.00 – 59.99	11
60.00 – 64.99	12
65.00 – 69.99	13
70.00 – 74.99	14
75.00 – 79.99	15
80.00 – 84.99	16
85.00 – 89.99	17
90.00 – 94.99	18
95.00 – 97.99	19
98.00 – 100,00	20

Correction of the midterm exams

A student can access the correction of the midterm exams if he/she i) did not obtain a minimum criteria (50% on each midterm) or ii) is not satisfied with the obtained credits and iii) in case of absence at the midterm exam due to a justified reason. If a student retakes the midterm exam because he/she is not satisfied with the obtained grade points, only the credits gained from the retaken midterms will be considered. Evaluation of the midterm corrections will be performed according to the criteria shown in the Table 2. Students will have the opportunity to correct one or more midterm exam only once. Correction of the midterm exam I-III will be held after completing regular class in terms set by the course schedule.

Laboratory practicals

A student can gain 8 credits throughout laboratory practicals. Evaulation of laboratory practicals implais precisely completed experimental part of laboratory practical (maximum of 4 grade points) and completed and accepted written report (maximum of 4 grade points). During laboratory practicals, the oral examination of the student can be performed by the teacher.

Seminars

Throughout the course, 12 seminars are planned during which students can achieve 2 grade points through active participation.

Final exam

The final exam is mandatory and comprises written and oral assessment. During the final exam, students can gain a maximum of 30 credits, 15 credits in the written part and 15 credits during the oral assessment. Students are required to meet the minimum criteria for both parts of the final exam.

The written and the oral part of the final exam cover the entire course content. The written part of the final exam consists of 30 multiple choice questions. In order to meet minimum criteria and earn grade points, students must have 50% of correctly solved questions. Achievements during the written part of the final exam will be converted into grade points according to the criteria shown in Table 3. In case when a student did not achieve the minimum criteria on the written part of the final exam, attending the final exam on the following exam term is mandatory.

Assessment of the oral part of the final exam:

7.5 credits: minimum criteria satisfied

8 - 9 credits: average criteria satisfied with noticeable errors

10 – 12 credits: answer with a few errors

13 – 15 credits: outstanding answer.

In order to pass the final exam, a student must achieve at least 50% of positive answers on both written and oral parts of the final exam. If the student is not satisfied with the final grade, he/she may refuse the grade. In case a student does not accept the grade, he/she must re-enter the final exam.

Table 3. Evaulation of the written part of a final exam

% of correct answered questions	Grade points/credits
50.00 – 59.99	7.5
60.00 – 64.99	8
65.00 – 69.99	9
70.00 – 74.99	10
75.00 – 79.99	11
80.00 – 84.99	12
85.00 – 89.99	13
90.00 – 94.99	14
95.00 – 100.00	15

Conditions for admission to the final exam

A student who accomplishes 35 or more grade points during all course classes can access the final exam. If a student achieves less than 35 grade points during all course classes, correction of the midterm exams will be organized. A student who achieves less than 35 grade points during all course classes even after the correction of the midterm exams, or is absent for more than 30% of all forms of classes, is graded as unsuccessful (F) and must re-enter the course.

Final grade

The final grade represents a sum of all grade points obtained during all course classes and on the final exam. Students are evaluated according to the ECTS (A-F) and numerical (1-5) system.

The ECTS and the numerical grading system are defined by the following criteria: A (5) 90 - 100 credits B (4) 75 - 89.99 credits C (3) 60 - 74.99 credits D (2) 50 - 59.99 credits F (1) 0 - 49.99 credits

Other notes (related to the course) important for students:

Teaching is held at the prescribed time and it is not possible to enter after the teacher enters. Food and beverages are not permitted in the classroom or in the laboratory. This includes plate lunches, drinks, candies, etc., whether opened or not. Likewise, cell phones are not allowed in the classroom during the midterm or final exams. Students must arrive on time for exam attendance. Anyone late for more than 15 minutes may be refused to undertake the exam.

Academic Honesty

It is expected that all students and teachers follow the code of academic honesty in accordance with the Code of ethics for the students of the Faculty of Medicine at the University of Rijeka. Please read the policy regarding academic honesty at: http://medical-studies-in-english.com/wp-content/uploads/2016/12/CODE-OF-ETHICS.pdf

Contact information

For questions and concerns, please feel free to contact us by e-mail or via the Department website. If you want to speak with a teacher during office hours (each working day between 11:00 am and 13:00 am), please let us know by e-mail or in class.

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Expected competencies at course enrollment: Students are expected to have basic knowledge of biology and chemistry.

COURSE HOURS 2022/2023

Biochemistry II

List of lectures, seminars and practicals:

EXAM DATES (final exam):
