

**Performance plan: academic year 2025./2026.**

| UNIVERSITY OF MOSTAR SCHOOL OF MEDICINE INTEGRATED UNIVERSITY STUDY         |   |  |                                       |          |         |           |
|---|---|--|---------------------------------------|----------|---------|-----------|
| COURSE: Medical Chemistry and Biochemistry II                               |   |  |                                       |          |         |           |
| Head of department: dr.sc. Nevenka Jelić-Knezović, associate professor      |   |  |                                       |          |         |           |
| Year  | II  |  | Semester                              | III      |         |           |
| Course Level: <b>Basic</b>  |   |  | ECTS points                           | <b>8</b> |         |           |
| Course Status   |   |  | mandatory                             |          |         |           |
| Class form  |   |  | <b>L + S + E = 42 + 34 + 34 (110)</b> |          |         |           |
| (Lecture + Seminars + Exercises L + S + E)                                  |   |  |                                       |          |         |           |
| Signature Requirements: Regular attendance of lectures, seminars, exercises |   |  |                                       |          |         |           |
| Examination method : written exam   |   |  |                                       |          |         |           |
| Teahers: assosiate professor Ivana Carev (IC),                              |   |  |                                       |          |         |           |
| Assistent professor : Gloria Zlatić Jelić (GZJ)                             |   |  |                                       |          |         |           |
| Assistent: Martina Vukoja (MV)  |   |  |                                       |          |         |           |
| Assistent: Ante Pušić (AP)  |   |  |                                       |          |         |           |
| Assistent: Ivona Cvetković (ICv)  |   |  |                                       |          |         |           |
| Monday 29.09.2025.  |   |  |                                       |          |         |           |
| Time  | Theme   |  |                                       | Group    | Teacher | Classroom |
| 9:00 - 10:30  | The Conformation and Dynamics of Protein Structure Proteins with Special Functions: Hemoglobin, Myoglobin |  | L                                     | AB       | GZJ     | 3         |
| 11:00 - 12:30   | Proteins with Special Functions: Hemoglobin, Myoglobin  |  | L                                     | AB       |         |           |
| 12:45-14:15   | Seminars  |  | S                                     | AB       |         |           |
| Tuesday 30.09.2025.   |   |  |                                       |          |         |           |
| 9:00-10:30  | Proteins with Special Functions: Collagen, Elastin,Actin, Myosin  |  | L                                     | AB       | GZJ     | 3         |
| 11:00-11:45   | Plasma Proteins and Immunoglobulins   |  | L                                     | AB       |         |           |
| 12:00-13:30   | Seminars  |  | S                                     | AB       |         |           |
| Wednesday 01.10. 2025.  |   |  |                                       |          |         |           |
| 9:00-10:30  | Vitamins: role and function   |  | L                                     | AB       | GZJ     | 3         |
| 11:00-11:45   | Coenzyme; Bioenergetics : The role of ATP   |  | L                                     | AB       |         |           |
| 12:00-13:30   | Seminars  |  | S                                     | AB       |         |           |
| Thursday 02.10.2025.  |   |  |                                       |          |         |           |
| 9:00-10:30  | Enzyme  |  | L                                     | AB       | GZJ     | 3         |
| 11:00-11:45   | Enzyme catalysis  |  | L                                     | AB       |         |           |
| 12:00-13:30   | Seminars  |  | S                                     | AB       |         |           |
| 14:00- 17:15  | Biochemistry Exercises  |  | E                                     | A        | MV      | CGL       |
| Friday 03.10.2025.  |   |  |                                       |          |         |           |

|                       |   |   |    |         |        |
|-----------------------|---|---|----|---------|--------|
| 9:00-10:30            | Reactive oxygen compounds and antioxidants                                      | P | AB | GZJ     | 3      |
| 11:00-12:30           | Seminars  | S | AB |         |        |
| 13:00-16:15           | Biochemistry Exercises  | E | B  | MV      | CGL    |
| Monday 06.10.2025.    |   |   |    |         |        |
| 9:00-12:15            | Biochemistry Exercises  | E | A  | MV      | CGL    |
| Tuesday 07.10.2025.   |   |   |    |         |        |
| 11:00-12:30           | Nucleic Acid Structure & Function   | L | AB | IC      | 3      |
| 12:45-13:30           | Metabolism of Nucleotides   | L | AB |         |        |
| 13:45-15:15           | Seminars  | S | AB |         |        |
| Wednesday 08.10.2025. |   |   |    |         |        |
| 8:00-9:30             | DNA Replication, transcription, translation                                     | L | AB | IC      | 3      |
| 15:15-16:00           | RNA synthesis, protein synthesis genetic code                                   | L | AB |         |        |
| 16:15-17:45           | Seminars  | S | AB |         |        |
| Thursday 09.10. 2025. |   |   |    |         |        |
| 8:00-9:30             | Regulation of Gene Expression, Molecular diagnostics                            | L | AB | IC      | 3      |
| 9:45-10:30            | Metabolism of xenobiotics, pharmacogenetics                                     | L | AB |         |        |
| 10:45-12:15           | Seminars  | S | AB |         |        |
| 14:00-17:45           | Biochemistry Exercises  | E | AB | ICv; AP | CP/MBP |
| Friday 10.10.         |   |   |    |         |        |
| 8:00-9:30             | Glycolysis  | L | AB | IC      | 3      |
| 9:45-10:30            | The Pentose Phosphate Pathway,  | L | AB |         |        |
| 10:45-12:15           | Seminars  | S | AB |         |        |
| 14:00-17:45           | Biochemistry Exercises  | E | AB | ICv; AP | CP/MBP |
| Monday 13.10.2025.    |   |   |    |         |        |
| 9:00-12:15            | Biochemistry Exercises  | E | B  | MV      | CGL    |
| 14:00-15:30           | Citric acid cycle   | L | AB | IC      | 3      |
| 15:45-16:30           | The Respiratory Chain & Oxidative phosphorylation                               | L | AB |         |        |
| 16:45-18:15           | Seminars  | S | AB |         |        |
| Tuesday 14.10.2025.   |   |   |    |         |        |
| 8:00-9:30             | Glycogen ; Synthesis and degradation  | L | AB | IC      | 3      |
| 9:45-10:30            | Gluconeogenesis, Cori cycle   | L | AB |         |        |
| 10:45-12:15           | Seminars  | S | AB |         |        |
| 14:00-17:45           | Biochemistry Exercises  | E | AB | ICv; AP | CP/MBP |
| Wednesday 15.10.2025. |   |   |    |         |        |
| 8:00-9:30             | Lipids of Physiologic Significance; Cholesterol Sythesis, Transport & Excretion | L | AB | IC      | 3      |
| 9:45-10:30            | Lipid Transport & Storage   | L | AB |         |        |
| 10:45-12:15           | Seminars  | S | AB |         |        |
| 14:00-17:45           | Biochemistry Exercises  | E | AB | ICv; AP | CP/MBP |
| Thursday 16.10.2025.  |   |   |    |         |        |
| 8:00-9:30             | Oxidation of Fatty Acids: Ketogenesis   | L | AB | IC      | 3      |
| 9:45-10:30            | The Diversity oft he Endocrine System   | L | AB |         |        |

|                         |   |   |    |         |        |
|-------------------------|---|---|----|---------|--------|
| 10:45-12:15             | Seminars  | S | AB |         |        |
| 14:00-17:45             | Biochemistry Exercises                                    | E | AB | ICv; AP | CP/MBP |
| Friday 17.10.           |   |   |    |         |        |
| 8:00-9:30               | Amino acid metabolism,: urea cycle                        | L | AB | IC      |        |
| 9:45-10:30              | Overview of Metabolism & the Provision of Metabolic Fuels | L | AB |         |        |
| 10:45-12:15             | Seminars  | S | AB |         |        |
| Monday 20.10.2025.      |   |   |    |         |        |
| 8:30-13:00              | Seminars  | S | AB | MV      |        |
| 31.10.2025.Written exam |   |   |    |         |        |

### Biochemistry exercises

Chemistry practicum (CP)

Microbiology practicum (MBP)

Cytogenetic laboratory (CGL)

|      |   |
|------|---|
| V9   | QUALITATIVE DETECTION OF PROTEIN                            |
| V10  | PROTEIN ELECTROPHORESIS IN SERUM                            |
| V11  | IONIZATIONAL PROPERTIES OF POLYPROTIC PARTICLES; AMINOACIDS |
| V12  | ENZYME KINETICS   |
| V14  | DETECTING MONOSACCHARIDES AND POLYSACCHARIDES               |
| V 15 | LIPIDS DETERMINATION  |
| V16  | ACID-BASE AND MINERAL STATUS IN ORGANISM                    |
| V17  | QUALITATIVE URINE ANALYSIS                                  |
| V18  | QUANTITATIVE ANALYSIS OF URINE                              |
| V19  | DNA ANALYSIS  |

\*The exact timing of group exercise exercises will be announced immediately before the exercise; the place of maintenance - (CP, MBP, and CGL)

### Literature (2025./2026.)

Required literature: For the course Medical Biochemistry is necessary:

Medical chemistry and biochemistry exercises handbook for medical students, I. Mikulić, N. Jelić Knezović, V. Mikulić, K. Landeka, A.Čuk. Medicinski fakultet, Mostar 2014.

Streyer L. Biochemistry, 6th ed. WH Freeman and Company, New York, 2011.

Harper's Illustrated Biochemistry , 31ST EDITION, 2018.

**SEMINARS** Solving tasks and issues after certain thematic units; individual presentations of the seminar work of the respective subject, of each individual student.

**Attending all forms of tuition is REQUIRED.**

For passage (on the final exam or the regular exam period) the student must achieve 55% or more points on the written exam. The unique grade of the exam will determine the number of points on a seminar, and activity during all forms of teaching.

