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|  **UNIVERSITY OF NIŠ** |
| **Course Unit Descriptor** | **Faculty**  |  |
| **GENERAL INFORMATION** |
| Study program  | **Medicine** |
| Study Module (if applicable) |  |
| Course title | Biochemistry |
| Level of study | ☐Bachelor ☐ Master’s ☐ Doctoral**☐ Academic integrated study** |
| Type of course | **☐ Obligatory** ☐ Elective |
| Semester  |  **☐ Autumn ☐Spring** |
| Year of study  | 2nd |
| Number of ECTS allocated | 15 |
| Name of lecturer/lecturers | Professor Dusica Pavlovic, MD. PhD, Professor Gordana Kocić MD. PhD, Professor Ivana Stojanovic, MD. PhD, Professor Tatjana Cvetkovic MD. PhD, Professor Tatjana Jevtovic-Stoimenov MD. PhD, Professor Dusan Sokolovic, MD. PhD, Ass Professor Jelena Basic, MD. PhD, Assistant Andrej Veljkovic, MD. PhD Assistant Milena Despotovic, MD. Assistant Branka Djordjevic, MD.  |
| Teaching mode |  ☐**Lectures**  ☐Group tutorials ☐ Individual tutorials ☐**Laboratory work** ☐ Project work ☐ Seminar ☐Distance learning ☐ Blended learning ☐ Other |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |
| To provide an introduction to:* basic knowledge and methods of biomolecule research
* mechanisms of action and measurement of activity of enzymes and their significance as biomarkers
* basic characteristics of anabolic and catabolic processes in organism
* pathways of cell signalling, hormones, and signal molecules
* structure of nucleic acids, regulation of gene expression, and biosynthesis of proteins
* composition of body fluids and biochemical function of tissues and organs
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| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| **Enzymes:** General properties of enzymes, chemical structure and mechanism of enzymatic catalysis; **Vitamins:** General properties and significance of vitamins; Vitamin disbalance; **Metabolism of carbohydrates:** General properties, division, and significance of carbohydrates; **Metabolism of fats:** General properties and roles of fat. Digestion and resorption of fats; **Transport of substances and biologic membranes; Metabolism of proteins and amino acids.** General properties and significance of amino acids; **Biologic oxydation.** Organisation of the respiratory chain in the mitochondria; **Simple and complex proteins.** Protein structure; **Nucleoproteids.** DNA organisation: structure of chromosomes and genes, characteristics of genetic code; **Metabolism of purine and pyrimidine nucleotids; Chromoproteids.** Hemoglobin and porphyrine metabolism. Structure of hemoglobin and its significance; hemoglobinopathies; **Metabolism of water and minerals.** Significance and distribution of water within the body (dehydration and hyperhydration); **Hormone biochemistry.** Mechanism of action of hydrosoluble hormones. Secondary messengers; **Biochemistry of tissues and body fluids. Blood.** Plasma proteins (albumins, globulins, fibrinogen). |
| **LANGUAGE OF INSTRUCTION** |
| **☐Serbian (complete course) ☐ English (complete course)**  ☐ Other \_\_\_\_\_\_\_\_\_\_\_\_\_ (complete course)☐Serbian with English mentoring ☐Serbian with other mentoring \_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **ASSESSMENT METHODS AND CRITERIA** |
| **Pre exam duties** | **Points 6** | **Final exam** | **points** |
| **Activity during lectures** | **4** | **Written examination** |  |
| **Practical teaching** | **6** | **Oral examination** | **50** |
| **Teaching colloquia** | **40** | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents**  |