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|  **UNIVERSITY OF NIŠ** |
| **Course Unit Descriptor** | **Faculty**  | Faculty of Sciences and MathematicsDepartment of Biology and Ecology |
| **GENERAL INFORMATION** |
| Study program  | Biology |
| Study Module (if applicable) | / |
| Course title | Biochemistry |
| Level of study | [x] Bachelor [ ]  Master’s [x]  Doctoral |
| Type of course | [x]  Obligatory [ ]  Elective |
| Semester  |  [x]  Autumn [ ] Spring |
| Year of study  | second |
| Number of ECTS allocated | 7 |
| Name of lecturer/lecturers | Nataša Joković |
| Teaching mode |  [x] Lectures [ ] Group tutorials [ ]  Individual tutorials [x] Laboratory work [ ]  Project work [ ]  Seminar [ ] Distance learning [ ]  Blended learning [ ]  Other |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |
| - acquiring knowledge on the structures and functions of biomolecules in living systems,- introduction with the role of enzymes in biochemical reactions,- mastering of the basic principles and matter and energy turnover pathways in living systems,- introduction to basic methods of laboratory work in biochemical research. |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| Theoretical classesIntroduction to Biochemistry. Biomolecules of the cell. Biological significance of water. Carbohydrates. Lipids and Diaphragm. Proteins. Nucleic acid. Enzymes. Introduction to metabolism. Bioenergetic principles. Respiratory chain. Oxidative phosphorylation. Glycolysis. Fermentation. Pentose phosphate pathway. Oxidative decarboxylation of pyruvate. The citric acid cycle. Glyoxylate cycle. Lipid catabolism. Catabolism of amino acids. Urea cycle. Nucleotide catabolism. Biosynthesis of carbohydrates. Glycogen metabolism. Lipid biosynthesis. The biosynthesis of amino acids. Nucleotide biosynthesis. Biosignaling. Integration and hormonal regulation of mammalian metabolism.Practical classes: Exercises, Other modes of teaching, Study research Solutions. Determination of the pH of the solution. Reactions for carbohydrates detection. Reactions for lipids detection. Reactions for amino acid and protein detection. Isolation of DNA. Reactions for vitamins detection. Determination of optimal conditions for the action of enzymes. |
| **LANGUAGE OF INSTRUCTION** |
| [x] 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** | **Final exam** | **points** |
| **Activity during theoretical lectures** | **5** | **Written examination** | **20** |
| **Activity during practical classes** | **5** | **Oral examination** | **40** |
| **Colloquia** | **20** |  |  |
| **Final test** | **10** | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |