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| **Study program:** Doctoral academic studies **-** Chemistry | | |
| **Course title:** Experimental Biochemistry (H308C) | | |
| **Name of lecturer/lecturers:** Danijela A. Kostić | | |
| **Type of course:** elective | | |
| **Number of ECTS allocated:** 10 | | |
| **Course objectives**  To provide students necessary theoretical knowledge about modern methods used in biochemical laboratories for the isolation, purification and characterization of biomolecules; develop the ability to select and practically apply appropriate biochemical methods. | | |
| **Course outcomes**  Upon successful completion of this course, the student will be able to:  - successfully apply the acquired knowledge in the processes of isolation, purification and characterization of biomolecules,  - interpret experimental results and proceeds further professionally and scientific training in this field. | | |
| **SYLLABUS**  *Lectures*  Preparation and stabilization of crude extract.  Isolation of proteins, quantification and determination of molecular mass of proteins.  Protein purification, precipitation and chromatographic methods.  Application of ion-exchange chromatographic methods in protein purification.  Application of affinity chromatography in protein purification.  Application of electrophoretic methods in protein purification.  Protein sequencing.  Modern methods of immunoanalysis and their application.  Application of radioisotopes in biochemical analyzes.  Application of enzymes in biochemical analyzes.  Isolation, purification and quantification of nucleic acids.  Sequencing of nucleic acids.  Development and validation of biochemical methods.  Presentation of the seminar paper. | | |
| **References**  1. R. Boyer, Modern experimental biochemistry, Benjamin Cummmins Publisher,1993.  2. L. Garrity, R. Switzer, Experimental biochemistry, W. H. Freeman Company, 1999.  3. O. Shawn Farrell, E. Lynn Taylor, T. Ryan Ranallo, Experiments in biochemistry: a Hands-on Approach, Brooks-Cole Pub., 2005. | | |
| **Active teaching classes** | **Lectures:** 105 | **Laboratory work:** / |
| **Teaching mode:** lectures, presentation | | |
| **ASSESSMENT METHODS AND CRITERIA (Max 100 points)** | | |
| activity during the lecture - 10 points; colloquium - 30 points; seminar work - 20 points; oral exam - 40 points | | |