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| **Study program:** Doctoral academic studies **-** Chemistry | | |
| **Course title:** Clinical Chemistry Methods of Analysis (H325C) | | |
| **Name of lecturer/lecturers:** Ivana D. Rašić Mišić | | |
| **Type of course:** elective | | |
| **Number of ECTS allocated:** 10 | | |
| **Course objectives**  Enabling the student to acquire knowledge about clinical chemistry methods of analysis for determination biomolecules in complex matrices and for application through scientific research work. | | |
| **Course outcomes**  After successful completion of this course, the student will be able to:  - define and explain various analytical-chemical principles of techniques and methods for qualitative and quantitative determination of clinically important bioanalytes,  - demonstrate the applicability of selected clinical chemistry methods of analysis in specific cases,  - make the correct selection of laboratory procedures when solving assigned practical problems in clinical chemical analysis,  - skillfully communicates in written and oral form about the topics covered by the course. | | |
| **SYLLABUS**  *Lectures*  Matrix characterization using spectroscopic methods. Instrumental methods for determination of the content of enzymes and their substrates. Heterogeneous immunochemical methods (Ligand-labeled assays). Labeled antibody methods. Enzyme-labeled methods. Radioisotopes. Fluorophores. Homogeneous immunochemical methods. Enzyme markers (ELISA). Chemiluminescent labels. Principles of electrophoresis. Capillary and zone electrophoresis. Centrifugation methods. Chromatography of biomolecules. Mass spectrometry of biomolecules. Low energy ionization techniques. Mass analyzers. Interpretation of mass spectra. | | |
| **References**  1. N. V. Tietz, Osnovi kliničke hemije, Velarta, Beograd, 1997.  2. S. Mikkelsen, Eduardo Corton, Bioanalytical chemistry, John Wiley & Sons, Inc., Hoboken, New Jersey, 2004.  3. A. Manz, N. Pamme, D. Iossifidis, Bioanalytical chemistry, Imperial College Press, London, 2004. | | |
| **Active teaching classes** | **Lectures:** 105 | **Laboratory work:** / |
| **Teaching mode:** lectures, seminars, consultations | | |
| **ASSESSMENT METHODS AND CRITERIA (Max 100 points)** | | |
| activity during lectures - 5 points; seminars - 50 points; oral exam - 45 points | | |