

Subject: LABORATORY DIAGNOSTICS IN CLINICAL PRACTICE	Subject type:	elective
Study year: 4	Content:	1/1 winter semester
Study program: General Medicine and Dental Medicine		

Aim of the course

The course of the laboratory diagnostics in clinical practice for 4-th year of study of medicine is an extension and continuation of basic Medical Biochemistry course. It is a quintessentially applied analytical chemistry especially focusing on the practical needs of future physicians. The aim of the course is to provide basic informations about the investigative laboratory methods used in laboratory (e.g. spectral, electrochemical, chromatographic) and their connection with the diagnosis of selected diseases (e.g. laboratory diagnosis in gastroenterology, cardiology, hepatology). In recent years have been done many new approaches in diagnostic procedures and there were observed many new analytes, particularly in the field of molecular-biochemical and proteomic techniques. The aim of the lectures as well as practical exercises is help future doctors be familiar with current laboratory techniques, with reference intervals and with the most used methods.

Education: block (lectures/practicals)

Assessment: graduated (written test)

Syllabus

The role of laboratory diagnostics in the practice of medicine. Basic biological material (blood, urine, pus, cerebrospinal fluid and other) - collection, handling, physiological and pathological values. Basic processing techniques of biological material - separation and isolation techniques in laboratory practice (e.g. isolation of proteins, NA). Physical and chemical methods of materials separation – e.g. chromatography, electrophoresis (HPLC, PAGE and agarose electrophoresis). Optical methods used in laboratory diagnosis – e.g. spectrometry, fluorescence techniques. Molecular-biochemical methods – e.g. PCR detection techniques of NA, cytogenetic methods, sequencing of DNA, cloning, hybridization). Methods using enzymes in laboratory diagnostics (e.g. ELISA, RIA). Use of laboratory diagnostic methods for the diagnosis of selected diseases – e.g. laboratory diagnosis in gastroenterology, cardiology, hepatology.