

Subject:	<i>Laboratory Diagnostics in Clinical Practice</i>		
Study Program:	<i>General and Dental Medicine</i>	Study Period:	<i>7. semester</i>
Evaluation:	<i>Graduated</i>	Subject Type:	<i>Elective</i>
Content:	<i>1 h. lectures and 1 h. exercises / week</i>		<i>Total 28 hours</i>

Workplace: **Department of Medical and Clinical Biochemistry UPJŠ FM**

<i>Week</i>	<i>Lectures</i>	<i>Practical Lessons</i>
1.	LABORATORY DIAGNOSTICS <ul style="list-style-type: none"> - Biological material - collection, storage - Phases of laboratory examination - Errors in the interpretation of laboratory results 	
2.		Basics of work in a biochemical laboratory <ol style="list-style-type: none"> 1. Work safety in the biochemical laboratory 2. Clinical-biochemical diagnostics 3. Assignment of seminar papers
3.	BASIC TECHNIQUES FOR PROCESSING BIOLOGICAL MATERIAL <ul style="list-style-type: none"> - Separation techniques - centrifugation, ultrafiltration - Isolation techniques - proteins, nucleic acids 	
4.		DNA isolation <ol style="list-style-type: none"> 1. Isolation and detection of proteins and DNA from biological material
5.	SEPARATION METHODS <ul style="list-style-type: none"> - Physico-chemical nature of substance separation - Chromatographic methods (e.g. HPLC) - Electrophoretic techniques (e.g. PAGE) 	
6.		Chromatographic methods <ol style="list-style-type: none"> 1. Determination of degradation products of amino acid metabolism by HPLC method
7.	OPTICAL METHODS <ul style="list-style-type: none"> - Lambert-Beer's law - Spectrophotometric methods - Fluorescence techniques - Atomic spectrophotometry 	
8.		Fluorescence analysis of urine and blood <ol style="list-style-type: none"> 1. Preparation of own samples and measurement
9.	DIAGNOSTIC USE OF ENZYMES <ul style="list-style-type: none"> - Enzymes and isoenzymes usable in laboratory diagnostics - Immunochemical methods - ELISA, EIA, RIA 	

10.		Immunochemical methods 1. ELISA
11.	MOLECULAR METHODS <ul style="list-style-type: none">- Use of recombinant DNA techniques in medicine and diagnostics- Methods of NA amplification - PCR, cloning- NA detection techniques - hybridization, sequencing- Cytogenetic methods - FISH	
12.		Molecular analyzes 1. RT-PCR 2. Electrophoretic detection of DNA
13.	USE OF LABORATORY METHODS <ul style="list-style-type: none">- Diagnostic possibilities of laboratory examinations of selected diseases- Evaluation of analyzes - normal values- Statistical processing of laboratories results	
14.		Final exercise 1. Presentation and evaluation of seminar papers 2. Allocation of credits