

Study Programme: Master of Science in Biology			
Course title: Medical Biochemistry			
Professor: Dr. Željko D. Popović, Assistant Professor			
Elective Course			
Prerequisites: Biochemistry, Molecular Biology, Animal physiology			
Course Objective			
Medical Biochemistry aim to introduce students with (1) basic pathological biochemical processes in human organism and (2) basic biochemical and molecular biological methods of biological material analysis in medical diagnostics. Also, the course aims to enable students to (3) understand the results of clinical biochemical tests and (4) use the acquired knowledge in this subject both in the process of student education and in everyday life.			
Course Outcome			
After passing the Medical Biochemistry Course, students should be (1) familiar with the basic pathological biochemical processes and conditions in the human organism as well as with (2) the biochemical and molecular methods of analysis in medical practice. Also, they should be able to (3) understand the results of biochemical analyzes and their importance in medical diagnostics as well as (4) to apply their knowledge both in the process of education of students and in everyday life.			
Course Content:			
<i>Theoretical part</i>			
(1) Introduction. Development of medical biochemistry. Types of biological material. Organization of biochemical medical laboratories, laboratory work rules, sampling and precautionary measures and protection. (2) Carbohydrate metabolism disorders. (3) Disturbances of metabolism of proteins and amino acids. (4) Disorders of metabolism of lipids and lipoproteins. (5) Disorders of metabolism of hemoglobin, iron, and porphyrin. (6) Hormones. (7) Disorders of metabolism of water and minerals. (8) Acido-base balance and gases in the blood. (9) Liver panel tests and gastrointestinal panel tests. (10) Panel tests of kidney and heart function. (12) Tumor markers. (13) Medical biochemistry in gynecology and obstetrics. (14) Medical biochemistry in pediatrics. (15) Molecular diagnostics.			
<i>Practical part</i>			
During the practical part of the course, students are introduced to the basic biochemical tests for monitoring the disorders of homeostasis of certain metabolites in body fluids, as well as the tests of the function of certain organs. In addition to compulsory exercises, visits to reference clinical biochemical laboratories are organized in order to familiarize students with the way they work and organize themselves.			
Reading List			
1. S. L. Jones: <i>Clinical Laboratory Pearls</i> , Lippincott Williams & Wilkins, Philadelphia, 2001.			
2. Review papers			
Total Hours	Lectures: 2	Practicals: 2	
Methods of Instruction			
Lectures, consultation, experimental work, journal club.			
Assessment(maximum number of points 100)			
Pre-examination	points	Final exam	points
Practicals	30	Written	50
Seminar	10	Oral	10