

Course Unit Descriptor

Study Programme: MSc in Biology			
Course Unit Title: Medical Biochemistry			
Course Unit Code: MB29			
Name of Lecturer(s): Associate Professor Željko D. Popović			
Type and Level of Studies: Master of Science, Second cycle			
Course Status (compulsory/elective): Elective			
Semester (winter/summer): Winter			
Language of instruction: English			
Mode of course unit delivery (face-to-face/distance learning): Face-to-face			
Number of ECTS Allocated: 7			
Prerequisites: Biochemistry, Animal physiology or similar			
Course Aims: Medical Biochemistry aims to introduce students to (1) a variety of pathobiochemical processes in human body and (2) most common biochemical and molecular biological methods 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 from this subject both in the laboratory setting and in everyday life.			
Learning Outcomes: After completing the Course, students should become (1) familiar with the most common pathobiochemical 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 analyses and their importance in medical diagnostics, as well as (4) to apply their knowledge both in the laboratory setting and in everyday life.			
Syllabus: <i>Theory</i> (1) Introduction. Brief history of medical biochemistry. Types of biological specimens. Organization of biochemical medical laboratories, laboratory work ethics, sampling and precautionary measures of protection. (2) Carbohydrate metabolism disorders. (3) Disturbances of protein and amino acid metabolisms. (4) Lipid and lipoprotein metabolic disorders. (5) Haemoglobin and iron metabolism, porphyry. (6) Hormones. (7) Metabolism of water and minerals. (8) Acido-base regulation and its connection with blood gases. (9) Liver and gastrointestinal panel tests. (10) Panel tests of kidney and heart function. (12) Tumor markers. (13) Medical biochemistry in OBGYN. (14) Medical biochemistry in pediatrics. (15) Introduction to molecular diagnostics. <i>Practice</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 for function of certain organs. In addition to compulsory exercises, visits to reference clinical biochemical laboratories are organized in order to familiarise students with the way they work and how they are organised.			
Required Reading: 1. M. Lieberman, A.D. Marks, C. Smith (2008). Marks' Essentials of Medical Biochemistry: A Clinical Approach. 2. S. L. Jones (2001) Clinical Laboratory Pearls, Lippincott Williams & Wilkins, Philadelphia			
Weekly Contact Hours: 6	Lectures: 4	Practical work: 2	
Teaching Methods: Lectures and students practical work.			
Knowledge Assessment (maximum of 100 points):			
Pre-exam obligations	points	Final exam	points
Active class participation		written exam	50
Practical work	30	oral exam	20