

Level: bachelor				
Course title: Intermediary Metabolism				
Status: obligatory				
ECTS: 10				
Requirements: none				
Learning objectives (1) to provide students with knowledge of the metabolic pathways of catabolism and anabolism, their regulation and interrelation, (2) to enable students to understand mechanisms of certain enzymatic reactions, (3) to get students familiar with connection between metabolic disorders and diseases in humans and animals, (4) to introduce students to trends in biochemistry, (5) developing students' ability to apply standard chemical and biochemical experimental methods in monitoring of metabolic processes.				
Learning outcomes After successful completion of this course the student is able to: (1) demonstrate knowledge of metabolic of catabolic and anabolism pathways of, their functions in the body and interrelation, (2) demonstrate knowledge of regulation of key metabolic pathways, (3) explain the mechanisms of certain enzyme-catalyzed reactions, (4) explain the connection between metabolic disorders and diseases in humans and animals (5) apply experimental chemical and biochemical methods in monitoring of biochemical processes and analyze the experimental results				
Syllabus <i>Theoretical instruction</i> Metabolism of carbohydrates (glycolysis, gluconeogenesis, glycogen metabolism, pentose phosphate pathway), regulation and energy balance. Krebs cycle. Electron-transport chain and oxidative phosphorylation. Photosynthesis. Digestion, absorption and transport of lipids. Fatty acid oxidation. Biosynthesis of fatty acids, acylglycerols and phospho- and sphingolipids. Digestion of proteins. Metabolic fate of amino group: transamination reactions, deamination and urea cycle. Decarboxylation of amino acids and physiologically active amines. Degradation of hydrocarbon skeleton of amino acids. Biosynthesis of amino acids and its regulation. Nucleotide metabolism. Synthesis and degradation of porphyrins. Replication, transcription and translation. Integration and regulation of human metabolism. <i>Practical instruction</i> Laboratory exercises follow theoretical instructions.				
Weekly teaching load				Other:
Lectures: 3	Exercises: 3	Other forms of teaching: 2	Student research: /	