

Level: bachelor				
Course title: Biochemistry in health and disease (IB-608)				
Status: obligatory				
ECTS: 6				
Requirements: none				
Learning objectives The aim of the course is to provide students with the necessary theoretical knowledge of the biochemical processes that take place in the pathological states. Also, the objective of the course is to develop student's ability to recognize the difference in the structure, function and amount of biomolecules between physiological and pathological states, as well as the interaction of appropriate groups of drugs and target biomolecules and their influence on the establishment of homeostasis.				
Learning outcomes Upon successful completion of the course, student should be able to: 1) understand basic biochemical principles of pathological conditions; 2) understand the role of biomolecules in the pathogenesis of selected diseases; 3) understand the interaction of biomolecules and drugs; 4) to understand the mechanism of action of the drug in the biochemical process				
Syllabus <i>Theoretical instruction</i> Biochemical processes in healthy cells and their change in pathological conditions. The role of biomolecules in the formation and development of the diseases of: 1) central and peripheral nervous system (e.g. Alzheimer's and Parkinson's diseases, multiple sclerosis, schizophrenia, depression); 2) gastrointestinal system (e.g. Crohn's disease); 3) cardiovascular system (e.g. atherosclerosis, hypertension); 4) skeletal system (e.g. rickets, osteoporosis); 5) renal and urinary systems (e.g. renal failure, urinary infections); 6) endocrine system (e.g. hyperthyroidism, gigantism); 7) vascular system (e.g. thrombophilia, haemophilia, anaemia); 8) respiratory system (e.g. respiratory infections); 10) reproductive system (e.g. sexually transmitted diseases); 11) inflammation and immune response (e.g. eicosanoids as inflammatory mediators). The effect of drugs on biomolecules involved in pathological processes. Model-systems for testing potential therapeutic agents. <i>Practical instruction</i> Analysis of case studies of different diseases from the biochemical aspect, as well as the preparation, discussion and defence of the project (seminar paper) on the chosen topic.				
Weekly teaching load				Other: /
Lectures: 3	Exercises: 2	Other forms of teaching: /	Student research: /	