

Table 5.2 Course specification

Type and level of studies: Bachelor Academic Degree			
Course name: Biochemistry in health and disease			
Course status: elective			
Number of ECTS credits: 6			
Requirement: none			
Course aim			
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.			
Course outcome			
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.			
Course content			
<i>Theory</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>Practice: Practical classes</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.			
Literature			
1. Internal scripts, available at MOODLE service			
<i>Additional readings</i>			
1. E. C. Toy, W. E. Seifert, H. W. Strobel, K. P. Harms: Case files biochemistry, McGraw Hill, 2015.			
2. N.S. Dhalla: Advances in Biochemistry in Health and Disease, Springer, 2010			
3. S. Tomlinson, A. M. Heagerty, A.P. Weetman, R. Malik: Mechanisms of disease, Cambridge, 2008			
4. E. Newsholme, A. Leech: Functional Biochemistry in Health and Disease, Wiley, 2010			
Number of classes of active teaching			Other classes
Lectures: 3 (45)	Practice: 2 (30)	OFT: 2 (30)	
Teaching methods			
Lectures, laboratory work, seminar(s)			
Assessment of knowledge (maximum of 100 points)			
Pre-exam obligations	Points	Final exam	points
activity during lecture classes	10	written exam	60
practical teaching	10		
seminars	20		