

Study program : BIOLOGY			
Type and level of studies: Master academic studies of second degree			
Course unit: Biomedical physiology – B205			
Teacher in charge : Branka I. Ognjanović , Ph.D.			
Language of instruction: English			
ECTS: 6			
Prerequisites: /			
Semester: Winter semester			
Course unit objective Introduction with the basic etiological factors (endogenous and exogenous) which cause disturbances of structure and function of cells, as well as with specifics of functional disorders of individual organs and organ systems.			
Learning outcomes of Course unit Understanding the modern concept of health and disease, mastering the necessary theoretical knowledge about the mechanisms of action of etiological factors on the body, about functional disturbances at the cellular level, about the causes and mechanisms of metabolic disorders, about the etiology and pathogenesis of the disorder at the level of organs / organ systems, about application possibilities in practice through lectures, independent seminar papers and tests, as well as the acquisition of practical knowledge and skills necessary for laboratory work.			
Course unit contents <i>Theoretical classes:</i> Introductory relation between health and disease. The etiology and pathogenesis of the disease. Endogenous and exogenous etiological factors. Model systems for the study of human disease. Adaptive changes in cells and cell response to injury. Non-specific and specific protection of the organism. Response to stress. The etiological factors: mechanical etiologic factors, physical etiological factors, chemical etiological factors (endotoxins and exotoxins), biological etiological factors. Disturbances of metabolism of inorganic substances: body fluids, water and electrolytes, calcium, phosphorus, magnesium, and trace elements. Disturbances of metabolism of organic substances: proteins, carbohydrates and fats. Fundamentals of medical and clinical enzymology: physiological role of the enzymes, etiology of enzymopathies, the role of enzymes in clinical diagnostics. Applied enzymology. Pathophysiology of interaction of chemical contaminants of working and living environment. <i>Practical classes:</i> <i>Exercises, Other modes of teaching , Study research thesis</i> Familiarizing with methods in experimental physiology and conducting experiments on various model organisms. Preparation of seminar papers and practical application of acquired knowledge.			
Literature Guyton AC, John E Hall. <i>Textbook of medical physiology, 13th edition</i> Kim E. Barrett, Susan M. Barman, Scott Boitano, Heddwen L. Brooks <i>Ganong's Review of Medical Physiology, 24th Edition</i> William D. McArdle, Frank I. Katch, Victor L. Katch <i>Exercise Physiology: Nutrition, Energy, and Human Performance</i> Rodney A. Rhoades, David Bell <i>Medical Physiology: Principles for Clinical Medicine</i>			
Number of active teaching hours			Other classes
Lectures:	Practice:	Other forms of classes: Mentoring (consultative) system	
Teaching methods Lectures - Power Point presentations, short films, seminars; Practical classes: laboratory exercises, demonstrations, computer simulations and animations of electrophysiological phenomena			
Examination methods (maximum 100 points)			
Exam prerequisites	No. of points:	Final exam	No. of points:
Student's activity during lectures		oral examination	10
practical classes/tests		written examination	50
Seminars/homework	30		
First test	10		
Other			

Grading system		
Grade	No. of points	Description
10	91 - 100	Excellent
9	81 - 90	Exceptionally good
8	71 - 80	Very good
7	61 - 70	Good
6	51 - 60	Passing
5	< 50	Failing

(Table 5.2) Course unit description