

Study program : BIOLOGY			
Type and level of studies: Master academic studies of second degree			
Course unit: Endocrinology - B203			
Teacher in charge : Miloš M. Matić, Ph.D.			
Language of instruction: English			
ECTS: 6			
Prerequisites: /			
Semester: Winter semester			
Course unit objective Understanding the function and molecular mechanisms of action of hormones, their role in physiological and pathophysiological processes, as well as in therapeutic use.			
Learning outcomes of Course unit The acquisition of theoretical knowledge and basic skills of experimental research in the field of endocrinology . Training students in setting and solving problems related to regulation and disorders of endocrine function .			
Course unit contents <i>Theoretical classes:</i> The regulatory function of the endocrine system. The division, synthesis, metabolism and mechanism of action of hormones. Regulation and self-regulation of hormone secretion. Structural and functional features of hormone receptors. Signalling the concept of a second messenger. Transmission of signals through the receptors coupled with G-protein; c-AMP signaling pathway; phospholipid and calcium signaling pathway; receptor tyrosine kinase. Physiology of neurohypophysis, pituitary, thyroid, parathyroid gland, endocrine pancreas, and adrenal glands hormones. The pineal gland. Tissue hormones . Sex hormones and reproduction. Placental hormones and the role of hormones in embryogenesis . Neuroendocrine -immune interactions. The influence of hormones on the brain and behavior . Dysfunction of the endocrine glands . Endocrine basis of pathophysiological processes and carcinogenesis . Therapeutic use of hormones. <i>Practical classes:</i> <i>Exercises, Other modes of teaching , Study research thesis</i> Regulation and mechanisms of action of hormones (computer simulation) . Experimental techniques in endocrinology (computer simulation) . The organization , realization , presentation and comment of results of experimental investigations related to investigation of the effects of removal of some endocrine glands and the effects of hormone treatment in animal experiments.			
Literature Guyton AC, John E Hall. <i>Textbook of medical physiology, 13th edition</i> Richard N. Hardy <i>Endocrine Physiology</i> Shlomo Melmed, Kenneth S. Polonsky , P. Reed Larsen , Henry M. Kronenberg <i>Williams Textbook of Endocrinology, 12 th Edition</i> J. Larry Jameson <i>Harrison's Endocrinology, 3th Edition</i> David G. Gardner, Dolores M. Shoback <i>Greenspan's Basic and Clinical Endocrinology, 9th Edition</i>			
Number of active teaching hours			Other classes
Lectures:	Practice:	Other forms of classes: Mentoring (consultative) system	
Independent work:			
Teaching methods Lectures - oral presentation , dialogue methods, Power Point presentations, computer simulations , tests, seminars, practical classes.			
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