1	Subject	**PHYSIOLOGY 2**			
2	Code	DFZ201			
3	Study Program	Study Program of Integrated studies in dental medicine			
4	Organizing Institution (Unit, Institute, Chair, Department)	UKIM-Faculty of Medicine Institute of physiology and anthropology			
5	Educational degree (first or second cycle)	Integrated study			
6	Study year/semester	2/3	7	Number of credits	7
8	Teacher	Prof. Sanja Mancevska, MD, PhD			
9	Preconditions	Signatures of first and second semester courses			

10 Teaching goals:

To ensure that the student understands the functions of regulatory systems of the human organism. The student should be able to:

• Define the functions of the system that regulates body fluids and acid-base balance, the functions of the nervous system and the senses as well as the endocrine system, to explain the mechanisms by which each of them performs those functions and associate them with anatomical and histological construction.
• Interpret the interrelations between the nervous and endocrine system and their connections with other organic systems.
• Perform certain practical procedures.

11 **Brief content**

Theoretical course	Class
Physiology of body fluids and their regulation. Physiology of the urinary system, the process of urine formation in kidneys and mechanisms of regulation; regulation of osmolality and the concentration of sodium, potassium, calcium, phosphate and magnesium; regulation of acid-base balance.	12
Physiology of the nervous system, neuron, nerve impulse, synapses, neurotransmitters and neuromodulators. Peripheral nervous system.	4
Physiology of the central nervous system. Physiology of the motor cortex, basal ganglia, cerebellum, brainstem, spinal cord, spinal reflexes, physiological functions of the autonomic nervous system.	9
Physiology of the reticular formation and physiology of the limbic system and hypothalamus. Patterns of brain activity and sleep. Physiology of cortex and higher intellectual functions.	3
Physiology of sensory system, receptors, neural pathways, sensory cortex, somatic sensations, sense of touch and position; sense of vision; sense of hearing; sense of balance; sense of taste; sense of smell; sense of pain.	7
Endocrine physiology and physiological mechanisms of action of hormones of the endocrine glands: pituitary, tireoidea, parathyroid glands, endocrine pancreas, adrenal glands, effects of parathyroid hormone and of calcitonin.	10
Total	45
Practical lessons:	Class
Body fluids, calculation of the glomerular filtration rate, examination of urine, determination of plasma puffer capacity	3
Examination of the peripheral nervous system in experimental animals, its excitability and conduction; effects of different stimulli on nervous tissue, nerve anesthesia	6
Reflex activity in humans. Reflex arc. Examination of clinically important human reflexes; Reflex activity in spinal animal. Spinal frog and spinal shock. Examination of reflex activity in spinal frog.	6
Examination of patterns of brain activity. Effects of autonomous nervous system on different organs.	3
Physiology of senses. Examination of the sense of touch, the sense of taste and smell; examination of the sense of vision, the sense of sound and balance.	9
Examination of the functions of the endocrine glands in experimental animals.	3

	Total				30
	Seminars				Class
	Physiology of urinary system and acid-base balance, physiology of central nervous system and senses, physiology of endocrine system				10
12	Methods of studying: class room oriented lectures, interactive lectures, group work, practical training, seminar paper				
13	Total available time		210 classes		
14	Organization of the course		45 classes - theoretical course, 30 classes- practical course, 10 classes – seminars, 125 classes - home individual learning and other activities		
15	Forms of teaching activities	15.1.	Theoretical course	45 classes	
		15.2.	Practical course, seminars	Practical course- 30 classes, seminars – 10 classes	
16	Other forms of activities	16.1.	Project tasks		
		16.2.	Individual tasks	20 classes	
		16.3.	Individual (home) learning	105 classes	
17	Method of assessment	17.1.	Tests	Points 36-60	
		17.2.	Active participation, seminar paper/project (oral/written presentation)	Points 10-20	
		17.3.	Final (oral) exam	Points 14-20	
18	Grading criteria (points / grade)	Up to 59 points		5 (five) (F)	
		from 60 to 67 points		6 (six) (E)	
		from 68 to 75 points		7 (seven) (D)	
		from 76 to 84 points		8 (eight) (C)	
		from 85 to 93 points		9 (nine) (B)	
		from 94 to 100 points		10 (ten) (A)	
19	Requirement for signature and taking the final exam	The student is required to actively follow all of the planned activities. Conditional criteria for assessment of knowledge: In order to get a signature, the student should obtain minimum points in both theoretical and practical courses, and to present seminar paper; In order to take the final exam, the student should obtain the minimum points from activity and test.			
20	Language of the course	English			
21	Method for evaluation of the quality of education	Anonymous student's evaluation of the subject, teachers and collaborators involved in the educational activities			
22	**Literature**				
	22.1.	**Mandatory textbooks**			
		No.	Author	Title	Publisher	Year
		1	Guyton AC, Hall JE.	Textbook of Medical Physiology 12 th edition.	Elsevier, London,	2011
	22.2.	**Additional literature**			

		No.	Author	Title	Publisher	Year
		1	Widmaier E, Raff H, Strang K.	Vander's Human Physiology: The Mechanisms of Body Function.	McGraw -Hill Education	2013