

Program of Study	:	DENTISTRY
Course	:	Physiology
Abbreviation	:	FYZ/ZAA11
Schedule	:	30 hours of lectures
		30 hours of exercises
Course Distribution	:	2nd year, 3rd semester
Number of Credits	:	0
Course Form	:	Lectures, exercises

Lectures :

Teachers :	MUDr. PharmDr. Lenka Bartošíková, Ph.D. Doc. MUDr. Jiří Nečas, CSc.
Study :	Continuous

	Date	Subject	Hrs	Teacher
1	19.09.2022	Introduction to the physiology. Physiology of the cell.	2	Bartošíková
2	26.09.2022	Membrane physiology I. (membrane potentials, ion channels).	2	Bartošíková
3	03.10.2022	Membrane physiology II. (types of transport through membrane).	2	Bartošíková
4	10.10.2022	Physiology of excitable tissues, neuron, synapses.	2	Bartošíková
5	17.10.2022	Autonomic nervous system - introduction	2	Bartošíková
6	24.10.2022	Physiology of cardiovascular system I.	2	Nečas
7	31.10.2022	Physiology of cardiovascular system II.	2	Nečas
8	07.11.2022	Physiology of cardiovascular system III.	2	Nečas
9	14.11.2022	Autonomic nervous system II.	2	Bartošíková
10	21.11.2022	Physiology of GIT (function of the oral cavity, esophagus).	2	Bartošíková
11	28.11.2022	Physiology of GIT (function of the stomach)	2	Bartošíková
12	05.12.2022	Physiology of GIT (function of the small and large intestines).	2	Bartošíková
13	12.12.2022	Physiology of GIT (hormones of GIT)	2	Bartošíková
14	19.12.2022	Physiology of liver and pancreas (exocrine function)	2	Bartošíková
15	02.01.2023	Physiology of immunity	2	Bartošíková

Exercises:

Leading Teacher:	MUDr. PharmDr. Lenka Bartošíková, Ph.D.
Teachers:	Doc. MUDr. Jiří Nečas
Study:	Continuous

	Dates 2022	Subject	Hrs	Teacher
1	19.-25.09.	Introduction to practical training: Organisation of the study. The rules of the safety of work in physiological laboratory.	2	Bartošíková
2	26.09.- 02.10.	Introduction to practical training : Physiology and function of skeletal, smooth and cardiac muscles. Exercise: <ul style="list-style-type: none"> • monosynaptic and polysynaptic reflex • reflex arc – function • determination of some reflexes in man 	2	Bartošíková
3	03.-09.10.	Introduction to practical training: Action potentials of cardiac cells. Cardiac cycle. Exercise: <ul style="list-style-type: none"> • Physical examination of the heart. • Measurement of the heart rate. • Demonstration of venous valves. • Effect of gravity on the content of the blood in the veins. 	2	Bartošíková
4	10.-16.10.	Introduction to practical training : Electrocardiography (ECG), the genesis of the ECG. Exercise: <ul style="list-style-type: none"> • recording and evaluation of ECG • calculation of average heart rate • construction of the electrical heart axis 	2	Bartošíková
5	17.-23.10.	Introduction to practical training : Blood flow, blood pressure and resistance. Methods of measuring blood pressure. Exercise: <ul style="list-style-type: none"> • Determination of blood pressure by means of the auscultatory and the palpation method. • Pulse examination. • Effect of gravity on blood pressure. 	2	Bartošíková
6	24.-30.10.	Introduction to practical training : Response of cardiovascular system to exercise. Exercise: <ul style="list-style-type: none"> • Functional tests of the cardiovascular system – Flack’s test, Ljanov’s test, Step test, Ruffier’s test, Letunov’s test . 	2	Bartošíková
7	31.10.-	Introduction to practical training :	2	Bartošíková

	06.11.	Lung volumes and capacities. Exercise: <ul style="list-style-type: none"> • nomograms voluntary apnoea		
8	07.-13.11.	Introduction to practical training: The transport of O ₂ and CO ₂ . Respiratory control. Exercise: <ul style="list-style-type: none"> • determination of forced vital capacity and forced expiratory volume (FEV₁) determination of maximal voluntary ventilation (MVV) and breathe reserve	2	Bartošíková
9	14.-20.11.	Introduction to practical training : Multiple-choice Test I. Physiology of cardiovascular system.	2	Bartošíková
10	21.-27.11.	Introduction to practical training : Energy intake and energy expenditure. Exercise: <ul style="list-style-type: none"> • determination of BMR according H-B formula • determination of BMI • determination of circumference of the waist • determination of WHR – waist hip ratio determination of glycaemia	2	Bartošíková
11	28.11.- 04.12.	Introduction to practical training : Renal physiology I. Exercise: <ul style="list-style-type: none"> • kidney functional tests - glomerular filtration, renal plasma flow, renal blood flow, maximal tubular transport 	2	Bartošíková
12	05.-11.12.	Introduction to practical training : Renal Physiology II. Exercise: <ul style="list-style-type: none"> • urinalysis – chemical tests, microscopic examination 	2	Bartošíková
13	12.-18.12.	Introduction to practical training : Water balance. Minerals. Exercise: <ul style="list-style-type: none"> • Presentations of students. 	2	Bartošíková
14	19.-25.12.	Introduction to practical training : Substitutions.	2	Bartošíková
15	02.-08.01. 2023	Exercise: Final assessment (interview). Credit.	2	Bartošíková

Completed by :	Zp (zápočet/credit)
Requirements :	To get a credit, the students must take part in all seminars, all practical training, pass all the tests successfully, be interested in practical topics, use practical methods and put down notes.
Literature :	<p>a) basic</p> <ol style="list-style-type: none"> 1. Arthur C. Guyton, John E. Hall: Textbook of Medical Physiology, ed.: W. B. Saunders Comp., 11th ed., 2005. 2. John E. Hall.: Guyton and Hall Textbook of Medical Physiology, ed.: Saunders Elsevier, 12th ed., 2011. 3. John E. Hall.: Guyton and Hall Textbook of Medical Physiology, ed.: Elsevier, 13th ed., 2016. 4. Bartošíková L., Luža J., Nečas J.: Practical Physiology, ed.: Palacký University Olomouc, 1st ed., 2009. <p>b) additional</p> <ol style="list-style-type: none"> 1. William F. Ganong: Review of Medical Physiology, eds.: The McGraw-Hill Companies, Inc., 22nd ed., 2005.