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| **Syllabus 2019/2020** | | | | | | | | | | | | | | | | | | | | |
| **Description of the course** | | | | | | | | | | | | | | | | | | | | |
| **Module/Course** | | | | | | **Human Physiology** | | | | | | | | **Group of detailed education results** | | | | | | |
| **Group code B** | | **Group name**  Scientific Basis of Medicine | | | | |
| **Faculty** | | | | | | Dentistry | | | | | | | | | | | | | | |
| **Major** | | | | | | Dentistry | | | | | | | | | | | | | | |
| **Specialties** | | | | | |  | | | | | | | | | | | | | | |
| **Level of studies** | | | | | | Uniform magister studies **X**\*  1st degree studies  2nd degree studies  3rd degree studies  postgraduate studies | | | | | | | | | | | | | | |
| **Form of studies** | | | | | | **X** full-time part-time | | | | | | | | | | | | | | |
| **Year of studies** | | | | | | **2** | | | | | | **Semester** | | | **X** Winter  **X** Summer | | | | | |
| **Type of course** | | | | | | **X** obligatory  limited choice  free choice / elective | | | | | | | | | | | | | | |
| **Course** | | | | | | major **X** basic | | | | | | | | | | | | | | |
| **Language of instruction** | | | | | | Polish **X** English other | | | | | | | | | | | | | | |
| \* mark with an **X** | | | | | | | | | | | | | | | | | | | | |
| **Number of hours** | | | | | | | | | | | | | | | | | | | | |
| Form of education | | | | | | | | | | | | | | | | | | | | |
| Unit teaching the course | | | Lectures (L) | Seminars (SE) | Auditorium classes (AC) | | Major Classes – not clinical (MC) | Clinical Classes (CC) | Laboratory Classes (LC) | Classes in Simulated Conditions (CSC) | Practical Classes with Patient (PCP) | | Specialist Classes – magister studies (SCM) | Foreign language Course (FLC) | Physical Education obligatory (PE) | Vocational Practice (VP) | | Self-Study (Student's own work) | E-learning (EL) | |
| **Winter Semester** | | | | | | | | | | | | | | | | | | | | |
| **Department of Physiology** | | | **10** | **5** |  | | **30** |  |  |  |  | |  |  |  |  | |  |  | |
|  | | |  |  |  | |  |  |  |  |  | |  |  |  |  | |  |  | |
| **Summer Semester** | | | | | | | | | | | | | | | | | | | | |
| **Department of Physiology** | | | 10 | 5 |  | | 30 |  |  |  |  | |  |  |  |  | |  |  | |
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| **TOTAL per year: 90** | | | | | | | | | | | | | | | | | | | | |
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| **Educational objectives** (max. 6 items)  **C1.** To make studentacquainted with issues of general physiology.  **C2.** To make studentacquainted with issues of detailed physiology.  **C3.** Student should beable to discuss physiological processes in human body at the cell, organ and system level, and discuss relationship between functions of different systems.  **C4.** Student should be able to have integrative approach to the human body in case of a change in the functioning of any system.  **C5.** Studentshould beacquainted with numerical values of basic physiological variables.  **C6.** Student should learn basic functional tests to assess functions of human body. | | | | | | | | | | | | | | | | | | | | |
| **Education result matrix for module/course in relation to verification methods of the intended education result and the type of class** | | | | | | | | | | | | | | | | | | | | |
| Number of course education result | | Number of major education result | | | | Student who completes the module/course knows/is able to | | | | | | | Methods of verification of intended education results (forming and summarising) | | | | Form of didactic class  *\*\*enter the abbreviation* | | | |
| **K 01** | | **B6** | | | | knows role and importance of body fluids, including saliva; | | | | | | | written examination, presentation, oral/ written test, report, | | | | L; MC | | | |
| **K 02** | | **B19** | | | | characterizes vital functions of a human body; | | | | | | | written examination, presentation, oral/ written test, report, | | | | L; MC | | | |
| **K 03** | | **B20** | | | | describes neurohormonal regulation of physiological processes; | | | | | | | written examination, presentation, oral/ written test, report, | | | | L; MC | | | |
| **K 04** | | **B21** | | | | knows principles of acid-base balance and transport of oxygen and carbon dioxide in the body; | | | | | | | written examination, presentation, oral/ written test, report, | | | | L; MC | | | |
| **K 05** | | **B22** | | | | knows principles of metabolism and nutrition; | | | | | | | written examination, presentation, oral/ written test, report, | | | | L; MC | | | |
| **K 06** | | **B23** | | | | knows numerical value of basic physiological variables and interprets changes in numerical values. | | | | | | | written examination, presentation, oral/ written test, report, | | | | L; MC | | | |
| **K 07** | | **C 7** | | | | knows structure of the immune system and understands its role; | | | | | | | written examination, presentation, oral/ written test, report, | | | | L; MC | | | |
| **K 08** | | **C 8** | | | | knows humoral and cellular mechanisms of innate and acquired immunity as well as mechanisms of hypersensitivity and autoimmune processes; | | | | | | | written examination, presentation, oral/ written test, report, | | | | L; MC | | | |
| **K 09** | | **C12** | | | | knows following terms: homeostasis, adaptation, resistivity, resistance, tendency, compliance, compensatory mechanisms, feedback response and the mechanism of the ‘vicious circle’; | | | | | | | written examination, presentation, oral/ written test, report, | | | | L; MC | | | |
| **K 10** | | **C15** | | | | knows basic disorders: regulation of hormone secretion, water and electrolyte balance, acid-base balance, kidney and lung function, and mechanisms of development and effects of disorders in the cardiovascular system, including shock; | | | | | | | written examination, presentation, oral/ written test, report, | | | | L; MC | | | |
| **U 01** | | **B 1** | | | | refers chemical phenomena to processes that occur in the oral cavity; | | | | | | | written examination, presentation, oral/ written test, report, | | | | L; MC | | | |
| **U 02** | | **B 2** | | | | interprets physical phenomena that occur in the chewing organ; | | | | | | | written examination, presentation, oral/ written test, report, | | | | L; MC | | | |
| \*\* L - lecture; SE - seminar; AC – auditorium classes; MC – major classes (non-clinical); CC – clinical classes; LC – laboratory classes; SCM – specialist classes (magister studies); CSC – classes in simulated conditions; FLC – foreign language course; PCP practical classes with patient; PE – physical education (obligatory); VP – vocational practice; SS – self-study, EL – E-learning . | | | | | | | | | | | | | | | | | | | | |
| Please mark on scale 1-5 how the above effects place your classes in the following categories: communication of knowledge, skills or forming attitudes:  Knowledge: .5…  Skills: …5. | | | | | | | | | | | | | | | | | | | | |
| **Student's amount of work (balance of ECTS points)** | | | | | | | | | | | | | | | | | | | | |
| **Student's workload**  (class participation, activity, preparation, etc.) | | | | | | | | | | | | | | **Student Workload (h)** | | | | | | |
| 1. Contact hours: | | | | | | | | | | | | | | 90 | | | | | | |
| 2. Student's own work (self-study): | | | | | | | | | | | | | | 150 | | | | | | |
| Total student's workload | | | | | | | | | | | | | | 240 | | | | | | |
| **ECTS points for module/course** | | | | | | | | | | | | | | 7 | | | | | | |
| Comments | | | | | | | | | | | | | |  | | | | | | |
| **Content of classes** (please enter topic words of specific classes divided into their didactic form and remember how it is translated to intended educational effects) | | | | | | | | | | | | | | | | | | | | |
| **Lectures**  **Winter semester:**  Introduction to physiology. Homeostasis.  Nervous system  Nervous system  Hormones  Hormones  **Summer semester:**  Cardiovascular system – cardiac muscle  Cardiovascular system – vascular system  Respiratory system  Blood  The kidneys | | | | | | | | | | | | | | | | | | | | |
| **Seminars**  **Winter semester:**  Growth of bones and tissues. Hormonal regulation of calcium-phosphorous metabolism: PTH, calcitonin, vit. D3  **Summer semester:**  Gastrointestinal tract | | | | | | | | | | | | | | | | | | | | |
| **Classes**  **Winter semester:**  **Homeostasis**  - definition of homeostasis, local and long-term mechanisms  - internal environment of human body; water areas, ion composition  - contribution of individual system in maintaining homeostasis  - dynamics of biological membrane, membrane transport  **Nervous system: Excitability**  - Nervous system; function, organizing, pathways of signal conduction  - Neuron: structure, types  - resting and action membrane potential  - conduction in neuron  - synapse: structure, types, conduction in the synapse  **Nervous system: Sensory systems. Senses**  - General information in the sensory systems  - Receptors: general properties and types of receptors  - somatic senses: touch, temperature, proprioception, pain  - Special senses: smell, taste  **Nervous system: Motor control system and brain functions (4 teaching hours)**  - Spinal cord: organization, properties of conduction, spinal reflexes  - muscle spindle  - Pyramidal and extrapyramidal system – functions  - Cerebellum: functional arrangement, role  - Equilibrium  **Autonomic nervous system (ANS)**  - Division of the ANS,  - Neurotransmitters and receptors  - Effectors, neuromodulators  - Control of the CNS on ANS  - Autonomic reflexes  - The ways of evaluation of ANS activity  **Muscle physiology**  - Skeletal muscles: structure of sarcomere, neuromuscular junction, excitation-contraction coupling, types of skeletal muscles  - Smooth muscles: strucutre, bioelectric activity, types of smooth mucsles  - Types of contractions  **Hormones**  - Types of hormones, regulating mechanisms of hormones secretion  - Hypothalamic and pituitary gland hormones, hypothalamic-pituitary axis  - Thyroid gland hormones  - Sex hormones  - hormones of adrenal gland: adrenal medulla and adrenal cortex  **Metabolism. Body Temperature regulation**  - Metabolism: definition, variety, determinants, control, methods of measurement  - Mechanisms of body Temperature regulation  - endocrine function of pancreas: insulin, glucagon  **Summer semester:**  **Physiology of cardiovascular system: Cardiac muscle**  - Physiological properties of cardiac muscle, regulation of heart activity  - Basics of ECG  - Cardiac cycle  **Physiology of cardiovascular system: Vascular system**  - Cardiovascular functional differentiation,  - Hemodynamic principles  - Blood pressure, heart rate, venous pressure  **Physiology of cardiovascular system – regulation. Venous circulation. Capillary circulation**  - Blood flow regulation : local, nervous, reflex, hormonal  - Venous circulation  - Capillary circulation  **Physiology of cardiovascular system: Specific vascular regions**  - Features and control mechanisms of circulation in specific regions: coronary circulation, cerebral circulation, pulmonary circulation, blood flow in the skin, visceral circulation, blood flow in the skeletal muscles  **Respiratory system**  - Mechanics of respiration: ventilation, respiratory resistance, function of respiratory pathways  - Spirometry  - Exchange of gases in the lungs, gasometry  - Nervous and chemical control of respiration  **Blood. Erythrocytes**  - Composition and functions of blood; Erythropoesis  - Properties and functions of erythrocytes  - Hemoglobin: structure and properties  - transport of gases in the blood  **Blood: Leucocytes. Hemostasis**  - Leucocytes: types, functions  - Immunity: types, mechanisms  - response to invading bacteria and viruses  - Hemostasis: phases of clotting and fibrinolysis,  - Role of platelets and the wall of blood vessel in clot formation  **Water-electrolyte balance. Physiology of the kidney**  - Kidney’s anatomy  - Glomerular filtration, reabsorption and secretion in the kidneys  - Acid-base balance and electrolyte balance in the kidneys | | | | | | | | | | | | | | | | | | | | |
| **Basic literature** (list according to importance, no more than 3 items)  1. Silverthorn. Human Physiology. Integrated Approach.  **Additional literature and other materials** (no more than 3 items)  1. Guyton. Textbook of Medical Physiology  2. Wiliam F. Ganong Review of Medical Physiology 22e | | | | | | | | | | | | | | | | | | | | |
| **Didactic resources requirements** (e.g. laboratory, multimedia projector, other…)  Computer lab, multimedia projector, TV with DVD player, daylight projector, blackboard, whiteboard, stationery, esthesiometer, TIP THERM device, neurological hammer, Piórkowski apparatus, ECG unit, apparatus for blood pressure measuring, device for hemodynamic measurements, spring dynamometer, infrared thermometer, weight evaluating fat content, measuring tape, stethoscope, spirometer, pickflowmeter, hematological lancets, hematocrit centrifuge, hematocrit tubes, serum with antibodies, light microscope, microscope slides, tissue/lignin, Petri dish, didactic films, hydrogen breath test gauge, glasses with stearin, hollowed slides, pulsoximeter, stopwatch, body composition weight, metronome, | | | | | | | | | | | | | | | | | | | | |
| **Preliminary conditions** (minimum requirements to be met by the student before starting the module/course)  Student has knowledge of human anatomy, histology; knows the course of basic chemical reactions and biochemical processes taking place in the body. | | | | | | | | | | | | | | | | | | | | |
| **Conditions to receive credit for the course** (specify the form and conditions of receiving credit for classes included in the module/course, admission terms to final theoretical or practical examination, its form and requirements to be med by the student to pass it and criteria for specific grades)  **Each absence must be made up, including rector’s days or dean’s hours. Conditions to receive credit for the course** (specify the form, criteria and conditions of receiving credit for classes included in the module/course, admission terms to final theoretical or practical examination, its form and requirements to be med by the student to pass it and criteria for specific grades).  Conditions required for getting credit for classes:  - attendance at all classes  - obtaining at least a satisfactory grade from each partial test  - obtaining at least a satisfactory grade from each semester, which is calculated from the average of all grades obtained in a given semester  Every absence from classes must be made up, including rector days and dean's hours (in this case, a form of presentation or essay prepared by the student as part of self-study is recommended).  Conditions required for admitting the student to the final exam:  - to take the final exam student has to obtain credit for each semester at least for a satisfactory grade.  Form of the final exam: oral or written test  In order to pass the final exam, student has to obtain at least a satisfactory grade in accordance with the criteria given below. | | | | | | | | | | | | | | | | | | | | |
| |  |  | | --- | --- | | **Grade:** | **Criteria for course** | | Bardzo dobra  (5,0) | avarage grade in the semester 4.76 – 5.0 | | Ponad dobra  (4,5) | avarage grade in the semester 4.26 – 4.75 | | Dobra  (4,0) | avarage grade in the semester 3.76 – 4.25 | | Dość dobra  (3,5) | avarage grade in the semester 3.26 – 3.75 | | Dostateczna  (3,0) | avarage grade in the semester 3.00 – 3.25 | |  |  | | | | | | | | | | | | | | | | | | | | | | |
| **Grade:** | | | **Criteria** (only for courses/modules ending with an examination) | | | | | | | | | | | | | | | | | | |
| Very Good  (5.0) | | | 94% - 100% of total points for final examination | | | | | | | | | | | | | | | | | | |
| Good Plus  (4.5) | | | 86% - 93% of total points for final examination | | | | | | | | | | | | | | | | | | |
| Good  (4.0) | | | 78% - 85% of total points for final examination | | | | | | | | | | | | | | | | | | |
| Satisfactory Plus  (3.5) | | | 70% - 77% of total points for final examination | | | | | | | | | | | | | | | | | | |
| Satisfactory  (3.0) | | | 61% - 69% of total points for final examination | | | | | | | | | | | | | | | | | | |
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| **Name and address of module/course teaching unit, contact: telephone and e-mail address**  Department of Physiology ul. T. Chałubińskiego 10, 50-368 Wrocław tel.: 71 784 00 91, 71 784 14 22, 71 784 14 23 faks: 71 784 00 92; e-mail address : [wl-9@umed.wroc.pl](mailto:wl-9@umed.wroc.pl)  **Coordinator / Person responsible for module/course, contact: telephone and e-mail address**  Head of the Department of Physiology prof. dr hab. Beata Ponikowska tel.: 71 784 14 22, 71 784 14 23; e-mail address: beata.ponikowska@umed.wroc.pl  **List of persons conducting specific classes: full name, degree/scientific or professional title, discipline, performed profession, form of classes**.  Agnieszka Buldańczyk, dr n.med., (biolog), ćwiczenia, wykłady Bartłomiej Paleczny, dr n.med., ćwiczenia, wykłady  Agnieszka Siennicka, dr n. o zdrowiu, ćwiczenia, wykłady Robert Skalik ,dr n.med., ćwiczenia, wykłady  Rafał Seredyński, mgr biol., ćwiczenia, wykłady  Małgorzata Wyciszkiewicz, dr n.biol., ćwiczenia  Adrianna Nowicka, mgr, ćwiczenia   |  |  | | --- | --- | | **Date of Syllabus development**  24.06.2019 | **Syllabus developed by**  dr n. med. Agnieszka Buldańczyk | | ………………………………………….. | ……........................................... | | **Signature of Head of teaching unit**  prof. dr hab. Beata Ponikowska | | | ……………....……………………………………………………………… | |   **Signature of Faculty Dean** | | | | | | | | | | | | | | | | | | |
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