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| **Syllabus 2018/2019** |
| **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 **X** 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** |
|  | **10** | **5** |  | **30** |  |  |  |  |  |  |  |  |  |  |
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| **Summer Semester** |
|  | 10 | 5 |  | 30 |  |  |  |  |  |  |  |  |  |  |
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| **TOTAL per year: 90** |
|  | 20 | 10 |  | 60 |  |  |  |  |  |  |  |  |  |
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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* |
| **W01** | **BW1** | describes water-electrolyte menagement in biologic systems; | Test, presentation, oral response, report, colloquium, oral examination/ written examination | L; MC |
| **W02** | **BW2** | describes acid-base balance and action of buffers in homeostasis of human body;  | Test, presentation, oral response, report, colloquium, oral examination/ written examination | L; MC |
| **W03** | **BW7** | Knows the physicochemical and molecular basis of action of sensory organs; | Test, presentation, oral response, report, colloquium, oral examination/ written examination | L; MC |
| **W04** | **BW18** | knows digestive enzymes, mechanisms of chloride acid secretion in the stomach, role of bile, process of nutrients absorption and disorders associated with absorption | Test, presentation, oral response, report, colloquium, oral examination/ written examination | L; MC |
| **W05** | **BW21** | knows pathways of communication between cells; between cell an extracellular matrix and pathways of signals in the cell, and examples of their disorders, that lead to development of cancers and other disorders | Test, presentation, oral response, report, colloquium, oral examination/ written examination | L; MC |
| **W06** | **BW24** | describes: basis of excitability and conduction in the nervous system, superior functions of nervous system, physiology of smooth and skeletal muscle, blood functions ; | Test, presentation, oral response, report, colloquium, oral examination/ written examination | L; MC |
| **W07** | **BW25** | knows functions and regulatory mechanisms of organs and systems in human body including: circulation, respiratory system, alimentary system, urinary system and skin, and understands interactions between them | Test, presentation, oral response, report, colloquium, oral examination/ written examination | L; MC |
| **W08** | **BW26** | knows effects and control of secretion of hormones –physiological controlling mechanisms, clinical consequences of hormonal dysfunction; | Test, presentation, oral response, report, colloquium, oral examination/ written examination | L; MC |
| **W09** | **BW27** | knows functions and control of reproductive system in male and female | Test, presentation, oral response, report, colloquium, oral examination/ written examination | L; MC |
| **W10** | **BW28** | knows mechanisms of human ageing | Test, presentation, oral response, report, colloquium, oral examination/ written examination | L; MC |
| **W11** | **BW29** | knows basic quantitative parameters that describe functions of particular organs and systems including: limit of normal parameters and demographic factors affecting them | Test, presentation, oral response, report, colloquium, oral examination/ written examination | L; MC |
| **U 01** | **BU7** |  describes changes in functioning of human body when homeostasis is disturbed, evaluates particularly integrated response of human body to physical exercise, to exposure to low and high temperature, to sudden tilting, to sleep and awakening, to blood or water loss  | Test, presentation, oral response, report, colloquium, oral examination/ written examination | L; MC |
| **U02** | **BU8** | is able to perform simple functional tests that evaluate human body as a system of stable regulation (exercise tests, loading test) and to interpret figures concerning basic physiologic variables; | Test, presentation, oral response, report, colloquium, oral examination/ written examination | 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 HormonesHormones**Summer semester:** Cardiovascular system – cardiac muscleCardiovascular system – vascular system Respiratory systemBlood 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 (4,6 teaching hours)**- 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 in the kidneys- Composition and physicochemical properties of the urine |
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| **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. Wiliam F. Ganong Review of Medical Physiology 22e
2. Guyton. Textbook of Medical Physiology
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| **Didactic resources requirements** (e.g. laboratory, multimedia projector, other…)Virtual physiology laboratory, computer programs, multimedia projector, scripts, TV and DVD, microscopes, multimedia programs, glucometer, disposable needles, microscope slides, test tubes, hematocrit tubes, centrifuge, immune serum, sofa, spirometer, pickflowmeter electrocardiographic unit, sphigmomanometer, stethoscope, equipment for urine analysis, pulsoxymeter, dynamometer, scale, measuring type, didactic films |
| **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)Conditions for completing the individual classes: student has to receive pass grade for partial tests and credit for classes according to Study Regulation of Physiology Department. Rules of admission to the final examination: student is obliged to meet the current regulations of Department of Physiology. Requirements the student has to meet to be allowed to sit in the final exam: student has to receive credit for classes and lecturesForm of the exam: written examination covering classes and lectures. To pass the exam student must obtain at least satisfactory grade in accordance to the criteria listed below. |
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| **Grade:** | **Criteria** (only for courses/modules ending with an examination) |
| Very Good(5.0) | 94% - 100% for final examination |
| Good Plus (4.5) | 86% - 93% for final examination |
| Good(4.0) | 78% - 85% for final examination |
| Satisfactory Plus (3.5) |  70% - 77% for final examination |
| Satisfactory (3.0) | 61% - 69% for final examination |
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| **Name and address of module/course teaching unit, contact: telephone and e-mail address**Department of Physiologyul. T. Chałubińskiego 10, 50-368 Wrocławtel.: 71 784 00 91, 71 784 14 22, 71 784 14 23faks: 71 784 00 92e-mail: wl-9@umed.wroc.pl**Coordinator / Person responsible for module/course, contact: telephone and e-mail address**Head of the Department of Physiologyprof. dr hab. Beata Ponikowskatel.: 71 784 14 22, 71 784 14 23e-mail: 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, wykładyAnna Janocha, dr hab. n.med., (lekarz medycyny), wykłady, ćwiczeniaBartłomiej Paleczny, dr n.med., (biolog), ćwiczenia, wykładyAgnieszka Siennicka, dr n. o zdrowiu, (biolog, psycholog), ćwiczenia, wykładyRobert Skalik ,dr n.med., (lekarz medycyny), ćwiczenia, wykładyAnna Tumińska, dr n.med., (lekarz medycyny), ćwiczenia, wykładyRafał Seredyński, mgr, ćwiczenia, wykładyWojciech Barg, dr hab. n.med. (lekarz medycyny), wykłady, ćwiczeniaMagdalena Krawczyk, lek. med., ćwiczenia

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| **Date of Syllabus development** 28.06.2018 |  **Syllabus developed by**  dr n. med. Agnieszka Buldańczyk |
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|  **Signature of Head of teaching unit**prof. dr hab. Beata Ponikowska |
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**Signature of Faculty Dean**  |
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