

Standard Course Syllabus on the academic year 2015/2016										
Description of the subject										
Na Name of subject:	Physiology	The group of detailed educational results								
		Group code: B	Group name: Scientific Basis of Medicine							
Faculty:	Medicine									
Major:	medicine									
Speciality	Not applicable									
Level of studies	Uniform MA Studies X									
Form of studies	full-time X part-time X									
Year of studies:		Seme ster:	Summer							
Type of class:	obligatory X elective <input type="checkbox"/>									
Language of instruction:	English X									
Unit:	Course hours									
	Form of education									
	Lectures (L)	Seminars (SE)	Auditorial Classes (AC)	Major Classes – not clinical (MC)	Clinical Classes (CC)	Laboratory Classes (LC)	Classes in Simulated conditions (CSC)	Foreign Language Course Minimum (FLC)	Optional Classes (OC) – minimum 24 students	
Winter semester										
Summer semester										
	12			60						
Total per year: 72										
<p>Educational aims: (max. 6 items)</p> <p>C1. To make students acquainted with issues of general physiology.</p> <p>C2. To make students acquainted with issues of detailed physiology.</p> <p>C3. To discuss physiologic processes in human body reflecting to organs, systems and cytophysiology.</p> <p>C4. Students should have the ability to notice any change in function of particular system and to consider functions of human body as the whole.</p> <p>C5. To make students acquainted with numerical value of physiologic parameters.</p> <p>C6. Students are able to perform basic function tests to assess functions of human body.</p>										
The education result matrix for the course in relation to the methods of intended education result										

verification and to the type of class.					
No. of the subject education result	No. of the education result	Student who has obtained a credit from the subject knows/ can/ is able to	Method s of the achievm ent verificat ion	Type of class	** Enter the symbol
W01	BW1	describes water-electrolyte metabolism in biologic systems;	test, presen tation, oral	L; MC	
W02	BW2	describes acid-base balance and mechanism of action of buffores in homeostasis;	respo nse, essay, report, colloq uium, oral exami nation / writte n exami nation		
W03	BW5	knows physical laws describing fluid flow and factors affecting cardiovascular resistance;			
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			
W05	BW19	knows results of unbalanced diet, long-term starving and overeating,			
W06	BW20	describes consequences of deficiency or excess of vitamins or minerals in human organism;			
W07	BW21	knows ways of communication between cells;			
W08	BW24	describes excitability and conduction of impulse in the nervous system, superior nervous functions, physiology of smooth and skeletal muscle, blood functions ;			
W09	BW25	knows functions and regulatory mechanisms of organs and systems in human body, including:			

W10	BW26	circulation, respiratory system, alimentary system, urinary system, test, presentation, oral response, essay, report, colloquium, oral examination/ written examination	test, presentation, oral response, essay, report, colloquium, oral examination	L; MC
W11	BW27	skin, interactions between organs and systems; knows effects and control of secretion of hormones –physiological controlling mechanisms, clinical consequences of hormonal dysfunction;	examination / written examination	
W12	BW28			
W13	BW29	knows functions and secretion control of reproductive system in male and female		
W14	BW30	knows mechanisms of human body ageing		
W15	BW34	knows basic quantitative parameters that describe functions of particular organs and systems; knows relationship between factors that disturb balance of biological processes and physiological and pathophysiological changes in human body; knows rules of performing of scientific examinations, examinations 'in vitro' used in medicine		
U1	BU1	uses physical laws to explain effects of external factors on human body;		
U2	BU7	describes changes in functioning of human body when homeostasis is disturbed, particularly evaluates integrated response of human body to physical exercise, exposure to low and high		

U3	BU8	temperature, sleep and awakening, blood or water loss is able to perform simple function tests that treat human body as a system of stable regulation (exercise tests, loading test) and to interpret figures concerning basic physiologic parameters;		
U4	BU10	uses simple measurement equipment and evaluates correctness of obtained dates;		
U5	BU11	uses different sources of information including internet to obtain required dates;		

** L - Lecture; SE - seminar; AC – Auditorial classes ; MC – Major classes (not clinical); CC – Clinical classes; LC – Laboratory Classes; CSC – Classes in Simulated Conditions; FLC – Foreign Language Course; OC – Optional Classes

Please use a cross to mark a scale 1-3, how the mentioned education results place Your class in the following sections: the transfer of knowledge, transfer of skills: (ex. knowledge +++; skills ++)

Knowledge (K):+++
Skills (S):+++

Student's workload input (ECTS points)

The form of student's workload	Student's workload (h)
1. Lessons on-site (hrs.):	72
2. Student's own work (hrs.):	30
Summary of the student's workload:	102
ECTS points per subject:	4
Notes:	

Subject of class: (please provide the topic of individual classes including type of class; remember the topic of class has to translate into intended education results).

In the case of coordinated subjects, please provide the topic of performed classes separately for each unit performing them:

Lecture

1. Excitability and spread of excitation.
2. Homeostasis.
3. Physiology of skeletal muscle and smooth muscle.
4. Blood – physiological functions.
5. Gastrointestinal physiology.
6. Physiology of the autonomic nervous system.
7. Physiology of the endocrine system. *2 pld.*

Seminar

- 1.
- 2.
- 3.

Classes

1. Homeostasis

- negative and positive feedback loop, variables and physiological control systems, setpoints, integrating centers,

2. Excitability

- types of stimuli, excitability, resting and action membrane potentials- depolarization, repolarization and hyperpolarization of neuron, law 'all or none event', conduction of action potential (velocity), structure and function of neuron and synapse, convergence and divergence, summation and inhibition of information

3. Autonomic nervous system (ANS)

- anatomical and functional division of the ANS, pre- and postganglionic neurons, neurotransmitters and receptors of the ANS, function of ganglia - synaptic transmission in ganglia, effectors of the ANS, second messengers, autonomic reflexes

4. Muscle physiology

- structure and innervation of skeletal muscle, neuromuscular synapse, action potential and mechanism of skeletal muscle contraction, smooth muscle: structure, innervation, action potential and contraction, physiological differences between smooth and skeletal muscle

5. Blood physiology

- content of blood, physical and chemical properties of blood, functions of blood, content of plasma, functions of plasma
- structure and function of erythrocyte, hemoglobin, hemolysis, osmotic resistance, hematocrit
- erythrocyte sedimentation rate, blood types, physiology of leucocytes, immunological response

6. Gastrointestinal (GI) tract

- function and processes of digestive system; motility, secretion, digestion and absorption of nutrients in particular parts of GI tract, functions of saliva, gastric juice and pancreas juice, autonomic innervation of GI tract, adjustment of motility to the amount of digested nutrients

7. Hormones

- effects and controlling mechanisms of endocrine system, differences and similarities in function of nervous and hormonal system, mechanisms of hormones effect on target tissues, effects and secretion control of: hypothalamic hormones, pituitary gland hormones, thyroid gland hormones,
- effects and secretion control of: adrenal cortex - glucocorticoids, mineralocorticoids, androgens, hormones of adrenal medulla, pancreas - insulin and glucagon, sex hormones - menstrual cycle and hormonal regulation of calcium-phosphate metabolism

Primary sources: (list in accordance with significance, not more than 3 items)

1. Silverthorn. Human Physiology. Integrated Approach.
2. Traczyk W.Trzebski A. Fizjologia człowieka z elementami fizjologii stosowanej i klinicznej. Wydawnictwo Lekarskie PZWL 2007
3. Konturek S. Fizjologia człowieka. Podręcznik dla studentów medycyny. Elsevier

Secondary sources with other didactic help: (not more than 3 items)

1. Guyton. Textbook of Medical Physiology
2. Borodulin-Nadzieja L. red. Fizjologia praktyczna, część 1 i 2. Górnicki Wydawnictwo Medyczne, 2008
3. Hansen J.T., Koeppen B.M. wyd. I polskie, red. S. Konturek Atlas fizjologii człowieka. Elsevier Urban & Partner, 2005

Requirements for teaching resources: (e.g. laboratory, multimedia projector, other ...)

Virtual physiology laboratory, computer programs, multimedia projector, scripts, TV and DVD, microscopes, multimedia programs, glucometer, centrifuge, immune serum, sofa, spirometer,

Preliminary terms and conditions:

(minimal terms and conditions required before the student commences the course).

- Knowledge of anatomy and morphology of human organs and systems.
- Knowledge of basic physical and biochemical processes in human body.

Conditions for completing the course: specify the terms and conditions for completing the classes included in the subject's scope, specify the requirements the student has to meet to be allowed to sit in the theoretical and/or practical exam, specify the form of the exam and the requirements for passing the exam, specify the criteria for particular grades

Conditions for completing the individual classes: student has to receive pass mark for partial tests, presentations; active participation in classes

Requirements the student has to meet to be allowed to sit in the theoretical exam: student has to receive credit for classes and lectures

Form of the exam: written exam

Requirements for passing the exam-receiving pass mark for final examination

Grade:	Grade criteria: (only for subjects completed with the exam)
Very good (5,0)	Knowledge that goes beyond obligatory sources
Good plus (4,5)	Little inadequate knowledge that goes beyond obligatory sources
Good (4,0)	Detailed knowledge included in obligatory sources
Sufficiently good (3,5)	Detailed knowledge included in obligatory sources concerning 50% of answers
Sufficient (3,0)	Basic knowledge

Name and address of unit conducting the course, contact information: telephone and e-mail

Katedra i Zakład Fizjologii
UM we Wrocławiu
ul. T. Chałubińskiego 10, 50-368 Wrocław
tel.: 71 784 00 91; 71 7841422
agnieszka.fornal@umed.wroc.pl

The list of teachers performing the classes: Name and Surname, academic or professional degree/title, field of study, occupation, type of classes:

In the case of coordinated subjects, please provide the topic of performed classes separately for each unit performing them.

prof. dr hab. Ludmiła Borodulin-Nadzieja
dr n. med. Wojciech Barg
dr n. med. Bartłomiej Paleczny
dr n. med. Agnieszka Siennicka
dr n. med. Agnieszka Buldańczyk
dr n. med. Robert Skalik
dr hab. n. med. Anna Janocha
dr n. med. Aleksandra Butrym
dr n. med. Ewa Salomon

Person responsible for the course:

prof. dr hab. Beata Ponikowska

Drawn up on (date):
30.06.2015

The syllabus has been drawn up by
dr Agnieszka Buldańczyk
dr Anna Tumińska

Signature of the Head of the unit conducting the course

prof. dr hab. Ludmiła Borodulin-Nadzieja
Uniwersytet Medyczny we Wrocławiu
KATEDRA I ZAKŁAD FIZJOLOGII
Kierownik

prof. dr hab. Ludmiła Borodulin-Nadzieja

The signature of the Dean of the Faculty of Medicine

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Wrocław Medical University
FACULTY OF MEDICINE
VICE-DEAN FOR STUDIES IN ENGLISH
Prof. Andrzej Hendrich, PhD