UNIVERSITY OF WARMIA AND MAZURY IN OLSZTYN

of Medicine

Course/module syllabus - part A

48SJ-PHYSI
ECTS: 8
YEAR: 2021Z

PHYSIOLOGY 1/2
PHYSIOLOGY 1/2

COURSE CONTENT
CLASSES

Introduction to the practical classes of human physiology. Electrical activity: resting membrane potentials and action potentials of neurons relative and absolute refractory periods; chronaxy and rheobase. Study of spinal reflexes. Sensory physiology. EEG. Physiology of muscles, tetanic contractions of muscles. Mechanisms of muscular fatigue. Electromyography. Electro-oculography. Structure and function of Heart muscles. Composition of blood. Red blood cells measurements. Hemostasis: clotting and bleeding time tests. ABO/Rh Blood Group typing, the RH system. Peripheral circulation. Measurements of the artery blood pressure.12 Peripheral circulation: Arterial palpation of the radial, ulnar, brachial and carotid pulses; simultaneously registration of the ECG and pulse; investigation of the arterial blood supply to the fingers by palmar arches - anastomoses of the radial and ulnar arteries. Measurement of the pulse wave velocity. Thermoregulation: warm, cold, temperature and thermography. Measurements of the temperature, the amplitude of the finger pulse and artery blood pressure changes after provocation with warm water and after cold pressure test. Paradoxal regulation of the skin perfusion by cold provocation

LECTURES

Introduction to Physiology. Principles of regulation of Physiology as an integrative science. Organization of the nervous system. Skeletal, cardiac and smooth muscle. The limbic system. Memory processing. Sensory physiology. Reflex pathways in the brain. Autonomic sympathetic and parasympathetic pathways. Role of the autonomic division in homeostasis. Physiology of blood. The immune system. Hemostasis and tissue repair. Cardiovascular system. The heart as a pump.

EDUCATIONAL OBJECTIVE:

Human physiology is the science of the mechanical, physical, and biochemical functions of humans, their organ systems, organs and the cells of which they are composed. This course is designed to provide students with an understanding of the function and regulation of the human body and physiological integration of the organ systems to maintain homeostasis. During the course you will examine human functions in a systemic fashion. The main objective in teaching this course is to ensure that you learn essential concepts and facts about human physiology, understand the major functions of organ systems in human, learn how the body strives for and achieves homeostasis, experience practical application of physiological principles. You need to learn how the healthy human body functions before you can learn in future classes how disease and injury impair its function.

DESCRIPTION OF LEARNING OUTCOMES FOR THE COURSE IN RELATION TO FIELD AND MAJOR LEARNING OUTCOMES

Codes of learning outcomes in a major field of study:	M/NM+++,
Codes of learning outcomes in a major area of study:	B.U13.+, B.U7.+, B.U9.+, B.W1.+, B.W2.+, B.W20.+, B.W21.+, B.W22.+, B.W25.+, C.W49.+, K.1.+, K.11.+, K.2.+, K.3.+, K.8.+, K. 9.+,

LEARNING OUTCOMES:

Knowledge

W1 - Defines physiological processes in the human body. Knows the activities and mechanisms of regulation of all organs and systems of the human body. BW1.Describes water and electrolyte balance in biological systems. BW2. Describes the acid-base balance and buffer mechanisms and their importance in systemic homeostasis.BW21. Knows the activities and mechanisms of regulation of all organs and systems of the human body, including the circulatory, respiratory, digestive, urinary, skin and the relationships between them. BW20. Knows the basics stimulation and conduction in the nervous system and higher nervous functions, as well as the physiology of skeletal muscle and smooth muscle cells. and function of blood. BW25. Knows the mechanism of action of hormones, and the consequences of hormonal regulation disorders. BW22. Knows the reproductive function and mechanism in women and men. BW25. Knows the relationship between factors disturbing the balance of biological processes and physiological changes.CW49. Knows and understands the enzymes involved in digestion, the mechanism of hydrochloric acid production in the stomach, the role of bile, the process of absorption of digestive products.

Skills

U1 - B.U7. Performs simple functional tests assessing the human body (stress tests, exercise tests). Interprets numerical data concerning basic physiological variables. B.U9. Supports simple measuring instruments and evaluates the accuracy of measurements. B.U13. Plans and performs simple scientific research, interprets the results and draws conclusions.

Social competence

K1 - K.1. Establishing and maintaining deep and respectful contact with the patient, as well as showing understanding for worldview and cultural differences. K.2. Being guided by the good of the patient. K.3. Abidance of medical confidentiality and patient rights. K.4.Taking actions towards the patient based on ethical principles, with the awareness of social conditions and limitations resulting from the disease. K.8. Draws conclusions from his own measurements or observations. K9. Implements the principles of professional cooperation in a team of specialists, including representatives of other medical professions, as well as in a multicultural and multinational environment. K11. Accepts responsibility for decisions made in the course of professional activities, including in terms of their own safety and that of others.

Course/module:
Physiology 1/2

Fields of education:

Course status:	mandatory
Course group:	A - przedmioty podstawowe
ECTS code:	
Field of study:	Medicine
Specialty area:	Medicine
Educational profile:	General academic
Form of study:	full-time
Level of study:	uniform master's studies
Year/semester:	2 / 3

Type of course:

Classes, Seminar, Lecture

Number of hours per semester/week:	Classes: 47, Seminar: 6, Lecture: 25

Teaching forms and methods

Classes(K1, U1, W1) : Practical laboratory exercice- working with simulation software, physiological experiments. 10 students participate in the lab classes., Seminar(K1, U1, W1) : The case scenario discussion, inquiry-knowledge, analysis and definition of the problem, clarify terms and concepts and mchanisms. Analyze the problem, formulate learning objectives. Classes in the form of PBL (Problem Based Learning)., Lecture(U1, W1) : A multimedia presentation-the transfer of knowledge in the form of a lecture.

Form and terms of the verification results:

CLASSES: Colloquium test - Written test consisting of parts of the test (multiple choice questions) and descriptive part.(K1, U1, W1) ; CLASSES: Report - Checking the ability to work in a team and analyze the results of experments. Quizess for each lab will be pick up and graded.(U1, W1) ; SEMINAR: Evaluation of the work and cooperation in the group - Students work in groups of five to solve case study. We assessed the contribution of individual student to work in group, the interaction between individuals in a group, exchange views, knowledge, how they analyze a problem, present the issue, explains the problem. His/hers activity engagement. (K1, U1, W1) ; SEMINAR: Part in the discussion - During the presentation of the case scenario we assess the level of discussion, the presentation style, how student define the problem. Are they able to work in a group, exchange the information, sharing of responsibilities within the group, We assess their creativity and sharing of responsibilities within the group.(W1) ; LECTURE: Written exam - The final exam is consist of test; 60 questions of multiple choice and the descriptive part; 10 questions cover the entire material from physiology.(U1, W1)

Number of ECTS points:	8
Language of instruction:	English

Introductory courses:

Anatomy, Histology, Biochemistry

Preliminary requirements:

It is assumed that all students have completed the required prerequisite courses and have knowledge of Human Anatomy.

BASIC LITERATURE

1) Arthur C. Guyton, Guyton and Hall. "Textbook of Medical Physiology," 13th Revised Edition. , wyd. Elsevier, 2016 ; 2) Costanzo LS., Physiology, Sixth Edition, wyd. Elsevier, 2017

SUPPLEMENTARY LITERATURE

1) Costanzo LS., BRS Physiology , wyd. Wolters Kluwer, 2018 ; 3) ,

Name of the organizational unit offering the course:

Katedra Fizjologii i Patofizjologii Człowieka,

Person in charge of the course:

prof. dr hab. wet. Mariusz Majewski, , dr hab. n. med. Agnieszka Skowrońska, prof. UWM

Course coordinators:

Notes:

Detailed description of the awarded ECTS points - part B

48SJ-PHYSI
ECTS: 8
YEAR: 2021Z

PHYSIOLOGY 1/2
PHYSIOLOGY 1/2

The awarded number of ECTS points is composed of:

1. Contact hours with the academic teacher:

- participation in: classes	47 h.
- participation in: seminar	6 h.
- participation in: lecture	25 h.
- consultation	2 h.
	80 h.

2. Student's independent work:

- preparation for lab classes	15 h.
- preparation for seminar	10 h.
- preparation for the test	35 h.
- prepartion for the final exam	60 h.
	120 h.

1 ECTS point = 25-30 h of the average student's work, number of ECTS points = 200 h : 25 h/ECTS = 8,00 ECTS
on average: **8 ECTS**

- including the number of ECTS points for contact hours with direct participation of the academic teacher: 3,20 ECTS points,
- including the number of ECTS points for hours completed in the form of the student's independent work: 4,80 ECTS points,