



48SJ-PHYSI
ECTS: 8.00
CYCLE: 2023Z

Course syllabus - part A Physiology 1/2

SUBJECT MATTER CONTENT

LECTURE

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.

SEMINAR

Seminars are held in the form of Problem Based Learning (PBL) with clinical case scenario to solve by each group. In small group discussion, the learner is expected to actively and productively participate, to further the group's performance and learning. Performance will be assessed by observation by faculty and peers.

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 Count, hemoglobin, hematocrit measurement, calculation of MCV, MCHC. Hemostasis: clotting and bleeding time tests. ABO/Rh Blood Group typing, the RH system. Peripheral circulation. Measurements of the artery blood pressure. 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

TEACHING OBJECTIVE

This course provides second year medical students with the basic facts and principles of Human Physiology. The Medical Physiology Course is a course which provides an understanding how cells, tissues, organs, and organ systems function together to create one organism.

DESCRIPTION OF THE LEARNING OUTCOMES OF THE COURSE IN RELATION TO THE DESCRIPTION OF THE CHARACTERISTICS OF THE SECOND LEVEL LEARNING OUTCOMES FOR QUALIFICATIONS AT LEVELS 6-8 OF THE

Legal acts specifying learning outcomes:
672/2020

Disciplines: medical sciences

Status of the

course:Obligatoryjny

Group of courses:A -

przedmioty podstawowe

Code: ISCED 0912

Field of study:Medicine

Scope of education:

Profile of education:

General academic

Form of studies: full-time

Level of studies: uniform

master's studies

Year/semester: 2/3

Types of classes: Lecture,
Seminar, Classes

Number of hours in

semester:Lecture: 25.00,

Seminar: 6.00, Classes: 47.00

Language of

instruction:English

Introductory subject:

Anatomy, Histology

Prerequisites: It is assumed

that all students have completed the required prerequisite courses and have knowledge of Human Anatomy and Histology.

Name of the organisational

unit conducting the

course:Katedra Fizjologii i

Patofizjologii Człowieka

Person responsible for the

realization of the

course:prof. dr hab. wet.

Mariusz Majewski, dr hab. n.

med. Agnieszka Skowrońska,

prof. UWM

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Additional remarks:

POLISH QUALIFICATION FRAMEWORK IN RELATION TO THE SCIENTIFIC DISCIPLINES AND THE EFFECTS FOR FIELDS OF STUDY:

Symbols for outcomes related to the discipline:

M/NMA_P7S_KO+++ , M/NMA_P7S_WG+++ ,
M/NMA_P7S_UW+++ , M/NMA_P7S_KR+++ ,
M/NM+++

Symbols for outcomes related to the field of study:

M/NM_B.W25.+ , M/NM_B.W1.+ , B.U13.+ ,
KA7_KR1+ , M/NM_B.W22.+ , B.U7.+ , B.U9.+ ,
K.1.+ , M/NM_B.W20.+ , M/NM_C.W49.+ ,
M/NM_B.W2.+ , KA7_KR2+ , K.5.+ ,
M/NM_B.W21.+

LEARNING OUTCOMES:

Knowledge:

W1 - B.W.1 - the water and electrolyte management in biological systems

W2 - B.W2 - the acid-base balance and the buffer action mechanism, and their significance in systemic homeostasis

W3 - BW21 - the activity and regulation mechanisms of all organs and systems in the human body, including the cardiovascular system, respiratory tract, digestive system, urinary tract, and integuments, and the mutual interdependencies between them

W4 - B.W20. - the basis of nervous system stimulation and conduction, including higher level nervous activity, as well as physiology of striated and smooth muscles plus blood functions

W5 - B.W25. - the relationship between factors disturbing the balance of the biological processes, and physiological and pathophysiological changes

W6 - B.W22. - the course and regulation of the procreation functions in women and men

W7 - C.W49. -the enzymes engaged in digestion, the mechanism of producing hydrochloric acid in the stomach, the role of bile, the course of absorption of digestion products.

Skills:

U1 - B.U7 - perform simple functional tests to assess the human organism as a stable regulation system (load and stress tests) and interpret the figures picturing the basic physiological variables

U2 - B.U9.- operate simple metering instruments and assess the exactitude of the measurements taken

U3 - B.U13. -plan and perform simple scientific studies, interpret its results, and draw conclusions.

Social competence:

K1 - K.5. -alerting and recognizing one's own limitations and self-assessing educational deficits and needs.

K2 - KA7_KR1 - apply the principles of academic and professional ethics and professional image, academic, social and professional professionalism

K3 - KA7_KR2 - inspire, be a leader and cooperate in an interdisciplinary team, in particular during PBL (Problem Based Learning) classes.

K4 - K.1.- Establishing and maintaining deep and respectful contact with the patient, as well as showing understanding for worldview and cultural differences

TEACHING FORMS AND METHODS:

Lecture(W1;W3;W5;W7;K2;):The lecture is conducted in the form of presentations and discussions with students. The material carried out during the lectures is included in the final exam.

Seminar(W2;K3;):Students prepare seminars in groups of 3-4 persons. Seminars are held in the form of Case Based Learning (CBL) with clinical case scenario to solve by each group. In small group discussion, the learner is expected to actively and productively participate, to further

the group's performance and learning.

Classes(W4;W6;U1;U2;U3;K1;K4):Students in small groups are participating in labs where they do experiments on human subjects under the guidance of their tutor. Lab Work performance is assessed on a weekly basis so that students get practice in researching, analysing and application of the information learned in the course. Our non-invasive setups LabTutor is an HTML-based software package with ADInstruments' PowerLab designed specifically for laboratory teaching of Physiology.

FORM AND CONDITIONS OF VERIFYING LEARNING

OUTCOMES:

Lecture (Write-up) - -

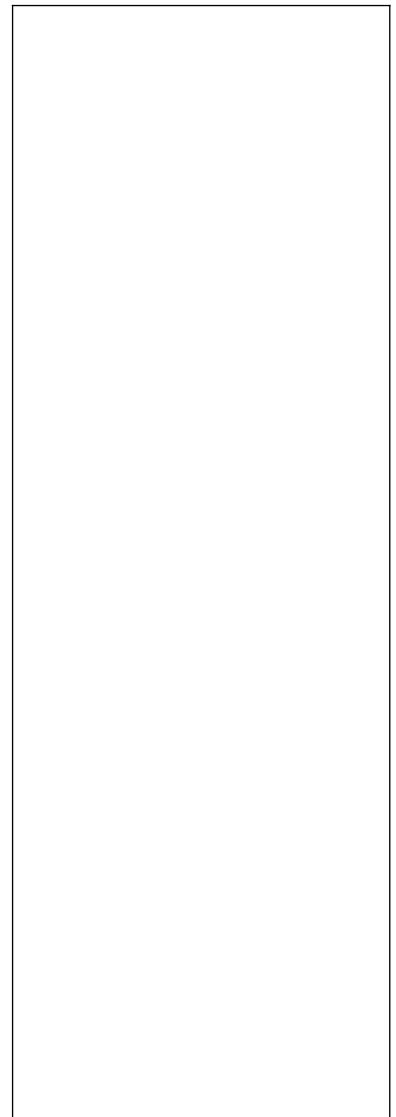
Seminar (Evaluation of the work and cooperation in the group) - Seminars are held in the form of Problem Based Learning (PBL) with clinical case scenario to solve by each group. In small group discussion, the learner is expected to actively and productively participate, to further the group's performance and learning. -

Classes (Report) - Written communication skills will be evaluated with the help of the laboratory reports. On each report, lab values need to be documented. Laboratory reports for each lab will be picked up in the end of the class and graded, (fail or pass). -

BASIC LITERATURE:

1. Arthur C. Guyton, Guyton and Hall, *Textbook of Medical Physiology*, Wyd. Elsevier, R. 2020
2. Costanzo LS., *Physiology*, Wyd. Elsevier, R. 2020
3. Dee Unglaub Silverthorn, *Human Physiology: An Integrated Approach*, Wyd. Dee Unglaub Silverthorn, R. 2022

SUPPLEMENTARY LITERATURE:



Detailed description of ECTS credits awarded - part B

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The number of ECTS credits awarded consists of:

1. Contact hours with the academic teacher:

- participation in: Lecture	25.0 h
- participation in: Seminar	6.0 h
- participation in: Classes	47.0 h
- consultation	2.0
	Total: 80.0 h.

2. Independent work of a student:

Preparation for the lab classes, preparation for the seminars case problem study, preparation for the colloquium and for final exam	120.00 h
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Total: 120.0 h

contact hours + independent work of a student Total: 200.0 h

1 ECTS credit = 25-30 h of an average student's work, number of ECTS credit = 200.0 h : 25.0 h/ECTS = 8.00 ECTS on average: 8.0 ECTS

- including the number of ECTS credits for contact hours with the direct participation of an academic teacher: 0,00 ECTS points,

- including the number of ECTS credits for hours of independent work of a student: