

**CLASS CARD****HUMAN PHYSIOLOGY**

Basic classes	Code in the study plan	ECTS
Human Physiology	7/2/I/PE	5

Education profile	General academic
Faculty and field of study	Faculty of Physical Education
Studies program in which the subject is realized	7/2/I/PE
Professor's name	dr hab. Piotr Żmijewski, prof. AWF
Level of studies (eg. bachelor, master)	Bachelor
Study year and semester	2 year, 3 semester
Language	English
Method of realization (stationary/ distance learning)	Stationary
Lectures/classes hours	Lectures
Form of passing classes	Exam
Type of subject (obligatory/ facultative)	Obligatory
Prerequisites	Basic knowledge of human biology, anatomy and biochemistry

**DETAILED INFORMATION****Course aims and objectives**

A1	To provide students with a theoretical foundation in the fundamental mechanisms governing the functioning of human body systems.
A2	To develop an understanding of how individual cells and organs interact to influence overall body function.
A3	To equip students with knowledge of the basic mechanisms that maintain physiological homeostasis.
A4	To introduce students to key physiological measurements and methods used to assess body function.

**LEARNING OUTCOMES IN KNOWLEDGE, SKILLS AND SOCIAL COMPETENCES FOR CLASSES**

Learning outcome	Subject's learning outcomes
<b>Knowledge</b>	
K_W01	Knows and understands advanced terminology in the discipline of physical culture sciences, particularly in the area of human physiology.

K_W02	Has an advanced knowledge and understanding of the structure and functioning of the human body, as well as the physiological and biochemical processes occurring in an athlete's body.
K_W04	Understands the principles of the body's functioning during physical effort and the negative and positive effects of physical activity. Understands the conditions for maintaining homeostasis and the processes of exercise adaptation.
<b>Skills</b>	
K_U01	Is able to identify and name the key functional components of the human body using specialized terminology, and can explain the relationships and interactions between them.
K_U03	Is able to explain and interpret changes in metabolism resulting from physical efforts of varying intensity and duration, using measurements of selected biochemical parameters.
<b>Social Competences</b>	
K_K03	Through their attitude, inspires and advises participants of physical recreation activities to engage in independent physical activity throughout different stages of life.

## SUBJECT PROGRAM CONTENT DIVISION BY FORMS OF IMPLEMENTATION

<b>FORM OF CLASSES – LECTURE - subject</b>		<b>Reference to subject-specific learning outcomes</b>
L1-2	Electrophysiology	K_W01
L3-4	Skeletal muscle physiology	K_W01, K_K03
L5-6	The nervous system	K_W01
L7-8	The autonomic nervous system and smooth muscle	K_W01
L9-10	Endocrinology and temperature regulation	K_W01
L11-12	Energetics and metabolic rate	K_W01
L13-16	Physiology of the blood	K_W02
L17-20	Physiology of the heart	K_W02, K_K03
L21-22	Circulation	K_W02, K_W04
L23-24	Respiration	K_W02
L25-26	Exercise capacity and fatigue	K_W01, K_W04
L27-28	Physiological effects of exercise training	K_W01, K_W04, K_K03
L29-30	Synthesis and test of competence	K_K03
<b>FORM OF CLASSES – CLASSES – subject</b>		<b>Reference to subject-specific learning outcomes</b>

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## PLANNED METHODS/FORMS/TEACHING MEANS

Program content	Teaching methods/forms
L1-28	Lecture with multimedia presentation
L29-30	Independent task completion
L27-28	Problem-solving and analysis
<b>Teaching resources:</b> Computer, Multimedia projector, Thematic presentations	

## METHODS OF VERIFYING THE EXPECTED LEARNING OUTCOMES ACHIEVED BY THE STUDENT

Learning outcomes for classes	Assessment methods
K_W01, K_W02, K_W04, K_U01, K_U03, K_K03	Competency test

## CONDITIONS FOR PASSING CLASSES:

The completion of all outstanding work resulting from absence from classes is mandatory. Missed content must be made up by preparing a summary or presentation covering the topics discussed during the missed classes.

The final grade is based on an assessment of knowledge and skills.

## SAMPLE ASSESSMENT/EXAMINATION TOPICS

1. Describe the ionic mechanisms underlying the generation and propagation of action potentials.
2. Explain the molecular basis of skeletal muscle contraction, including the role of calcium and ATP.
3. Define the organization and primary functions of the central and peripheral nervous systems.
4. Describe how the autonomic nervous system regulates smooth muscle activity.
5. Explain the hormonal mechanisms involved in thermoregulation and endocrine feedback loops.
6. Define basal metabolic rate and explain how it is affected by various physiological factors.
7. Describe the components of blood and explain their roles in oxygen and carbon dioxide transport.
8. Explain the phases of the cardiac cycle and the mechanisms controlling heart rate and stroke volume.

9. Describe how blood flow and blood pressure are regulated within the circulatory system.
10. Explain the mechanics of pulmonary ventilation and the regulation of respiratory rate.
11. Define exercise capacity and explain the physiological causes of acute and chronic fatigue.
12. Describe the major cardiovascular and muscular adaptations resulting from regular exercise training.

## ENGLISH BIBLIOGRAPHY

<b>Basic</b>	Kenney, W. L., Wilmore, J. H., & Costill, D. L. (2023). <i>Physiology of sport and exercise</i> (8th ed.). Human Kinetics.
<b>Additional</b>	McArdle, W. D., Katch, F. I., & Katch, V. L. (2022). <i>Exercise physiology: Nutrition, energy, and human performance</i> (9th ed.). Wolters Kluwer.

## SELF STUDY

Full-time studies		Type of activity
Number of hours to complete the activity	ECTS	
30	1	Classes requiring the direct participation of academic teachers
120	4	Other forms of classes/education for achieving the intended learning outcomes (total)

**Number of ECTS points that a student obtains in classes developing practical skills: 2**

<b>Author of the class card:</b>	<b>Name, surname and email</b>
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