Course Syllabus

I. General Information

Course name	Animal physiology
Programme	Biotechnology
Level of studies (BA, BSc, MA, MSc, long-cycle MA)	BSc
Form of studies (full-time, part-time)	part-time
Discipline	Biological sciences
Language of instruction	English

Course coordinator/person responsible	Dr hab. Anna Rymuszka

Type of class *(use only the types mentioned below)*	Number of teaching hours	Semester	ECTS Points
lecture	30	III	6
tutorial			
classes	30	III	
laboratory classes			
workshops			
seminar			
introductory seminar			
foreign language classes			
practical placement			
field work			
diploma laboratory			
translation classes			
study visit			

Course pre-requisites	basics of: cytophysiology and ontogenesis, chemistry

II. Course Objectives

To acquire knowledge about the principles of functioning of the human and animal organism.
Getting acquainted with biological processes taking place in living organisms. Knowledge and understanding of adaptive mechanisms to maintain homeostasis of the organism.

III. Course learning outcomes with reference to programme learning outcomes

Symbol	Description of course learning outcome	Reference to programme learning outcome
KNOWLEDGE		
W_01	explains basic physiological concepts and terms, principles of functioning of the following systems: nervous, hormonal, digestive, respiratory, circulatory, excretory, sense organs of the human and animal organism;	K_W01, K_W02, K_W07
W_02	is able to interpret the biological, biochemical and biophysical processes which occurring in living organisms;	K_W02, K_W08
W_03	understands and correctly interprets the body's reactions to environmental stress and adaptive mechanisms;	K_W07
SKILLS		
U_01	plans selects and applies the method of analysis of the basic physiological phenomena and is able to interpret the obtained data;	K_U01, K_U03, K_U15
U_02	performs selected basic serological and biochemical analyses of blood and urine; measurements of reflex reactions and stimulus perception, assessment of heart rate and blood pressure under unencumbered conditions and after physical exertion;	K_U02, K_U03, K_U15
U_03	designs, executes and interprets the spirometric measurements;	K_U02, K_U15
U_04	learns independently verifying obtained results of determination of physiological parameters based on reference values, learns new research techniques for future professional development;	K_U17
U_05	elaborates in writing issues related to the mechanisms of functioning of individual organs, systems;	K_U13
SOCIAL COMPETENCIES		
K_01	is aware of the health promoting behaviours associated with quality of life; and possesses appropriate habits required to the work in scientific laboratories, proceeds according to work safety regulations, knows how to react in states of danger;	K_K04

IV. Course Content

Lecture contents:
Hematopoiesis; composition and functions of the plasma; iron metabolism; types of the circulatory systems in vertebrates; the venous blood return to the heart, morphology and characteristics of blood vessels; homeostasis; regulation of the circulatory system; metabolism, catabolism, anabolism, the role of enzymes in the regulation of metabolism, vitamins, minerals; the acid-base balance and regulation; thermoregulation, the importance and functioning of the endocrine glands: hypothalamus, pituitary, thyroid, parathyroids, adrenals, pineal body; functions of the hypothalamo-pituitary axis; hormones.
Classes content:
- functions of plasma proteins, homeostasis; determination of hematocrit and hemoglobin, erythrocyte sedimentation rate;
- dynamics of blood circulation; regulation of cardiovascular system, changes in cardiovascular function, characteristic of the cardiac muscle, mechanical and electrical events in the cardiac cycle,

blood pressure, determination the physical fitness using the \"Harvard step-up test \"; - respiratory, gas transport, regulation of respiratory system, lung volumes and capacities, spirometry; - functional morphology of the kidney, nephron structure and function, regulation of the urinary system, endocrine function of the kidney, renal clearance; - digestion and absorption, secretion and regulation of gastric secretion, bile duct and pancreatic secretion, liver functions; - physiology of nerve cells, membrane potentials, synaptic conduction, reflex arc; -7 information and the senses, perception and processing of various types of stimuli, the phenomenon of adaptation, receptors, anatomy of the eye, functions of the retina, photoreceptors, color vision, mechanisms of visual perception, the functional anatomy of the ear, smell and taste physiology;

V. Didactic methods used and forms of assessment of learning outcomes

Symbol	Didactic methods *(choose from the list)*	Forms of assessment *(choose from the list)*	Documentation type *(choose from the list)*
KNOWLEDGE			
W_01	Conventional lecture, Work with text, Laboratory analysis, Discussion, Guided practice	Report, Written test, Exam/Written test	Report file, Evaluated written test, Evaluated written exam,
W_02	Conventional lecture, Work with text, Laboratory analysis, Discussion, Guided practice	Report, Written test, Exam/Written test	Report file, Evaluated written test, Evaluated written exam,
W_03	Conventional lecture, Work with text, Laboratory analysis, Discussion, Guided practice	Report, Written test, Exam/Written test	Report file, Evaluated written test, Evaluated written exam,
SKILLS			
U_01	Laboratory classes, Practical classes, Group Work	Report, Written test,	Report file, Evaluated written test,
U_02	Laboratory classes, Practical classes, Group Work	Report, Written test,	Report file, Evaluated written test,
U_03	Laboratory classes, Practical classes, Group Work	Report, Written test,	Report file, Evaluated written test,
U_04	Laboratory classes, Practical classes, Group Work	Report, Written test,	Report file, Evaluated written test,
U_05	Laboratory classes, Practical classes, Group Work	Report, Written test,	Report file, Evaluated written test,
SOCIAL COMPETENCIES			
K_01	Laboratory classes, Practical classes, Group Work	Report, Written test,	Report file, Evaluated written test,

VI. Grading criteria, weighting factors.....

Grades from the written examination, colloquium and reports are taken into account. The indicated level of knowledge of the educational content applies to each of the assessed elements.

Mark	**Evaluation criteria**	
Note (5)	student accomplishes the assumed learning outcomes to a very good degree	demonstrates knowledge of the education content at the level of 91-100%
Note (4,5)	student accomplishes the assumed learning outcomes to an extent over good	demonstrates knowledge of the education content at the level of 86-90 %
Note(4)	student accomplishes the assumed learning outcomes to a good degree	demonstrates knowledge of the education content at the level of 71-85%
Note (3,5)	student accomplishes the assumed learning outcomes to a quite good degree	demonstrates knowledge of the education content at the level of 66-70%
Note (3)	the student accomplishes the assumed learning outcomes to a sufficient degree	demonstrates knowledge of the education content at the level of 51-65%
Note (2)	the student accomplishes the assumed learning outcomes to an insufficient degree	demonstrates knowledge of the education content at the level below of 51%

VII. Student workload

Form of activity	Number of hours
Number of contact hours (with the teacher)	60
Number of hours of individual student work	90

VIII. Literature

Basic literature
HALL, J.E 2016. Guyton and Hall textbook of medical physiology. 13th edition. Philadelphia, PA, Saunders Elsevier. Guyton, A.C. & Hall, J.E. 2011. Textbook of medical physiology. 11th edition. Philadelphia, PA, Saunders Elsevier
Additional literature
Scanlon V. C., Sanders T. Essentials of Anatomy and Physiology. 5th edition. F.A. Davis Company, 2006