Course Title	**Human Physiology**				
Course Code	ABS108				
Course Type	Compulsory				
Level	BSc (Level 1)				
Year / Semester	1st / 2nd Semester				
Teacher's Name	Dr. Phivos Symeonides, Dr Savvas Ioannou				
ECTS	6	Lectures / week	3+1*	Laboratories/week	-
Course Purpose	The aim of the course is help students understand the function of various organs, systems and ultimately the way the whole human body works under normal conditions. Also the purpose is to provide students with the essential knowledge of the biochemical basis upon which each tissue and system functions. The concept of the biological phenomenon of homeostasis is another objective of the course. Physiology is the cornerstone of medicine, in the sense that it is fundamental to understand the mechanisms by which the physiological becomes pathological; thus it provides the basis for the prevention and treatment of diseases. *tutorial				
Learning Outcomes	By the end of this course, students should be able to: • Describe the normal functioning of the various organs and the whole organism. • Explain in detail the specific functional role of each system and the interactions and interfaces between the different systems. • Refer to the normal biochemistry involved in every function of the body's tissues. • Analyze the concept of homeostasis and its significance for the human body. • Explain the cascade of disease mechanisms and potential for intervention. • Link to knowledge from relevant lessons already learned.				
Prerequisites	None	Corequisites	None		
Course Content	Introduction to Physiology. Cells, tissues, organs, organ systems. The internal environment and homeostasis. Transmembrane transport of dissolved substances and water. Structure and composition of the membrane. Diffusion & Osmosis. Protein-mediated membrane transport - active and facilitated transport. Nervous system. Central and peripheral system. Nerve tissue anatomy and microscopic structure of the neuron. Transmission of impulse. The autonomic nervous system and its regulation: sympathetic and parasympathetic system. Autonomous and hypothalamic functions. General aesthetic system. Principles of aesthetic physiology - aesthetic receptors, stimulus, aesthetic coding (type and location of stimulus).				

	Neuromuscular connections. Membrane potential, the creation and transmission of energy potential. Synaptic gap and transmission. Muscles. Structure of muscle tissue. The contraction unit. Isometric and isotonic contractions. The physiology of exercise. Control of muscle contraction. Skeletal and smooth muscles. The kinetic system. The motor unit - motor neurons, Synaptic integration and production of energy potentials. Muscle tension receptors, medullary spinal cord neurons and spinal reflexes. The control of posture and movement by the brainstem. Control of movement by the cortex, cerebellum and basal ganglia. Special senses - visual system. Eye structure and normal vision. Visual disorders. Blood components. Leukocytes, lymphocytes and blood groups. Blood hemostasis - vasoconstriction, platelet thrombosis and coagulation of blood. Circulatory and cardiovascular system. The electrical activity of the heart - cardiac energy potential and cardiac excitement. Physical stimulation of the heart. Basic principles of Electrocardiography. The anatomical basis of cardiac function. Anatomy of the heart: cardiac muscle cell, heart cavities and valves. The heart sounds and the heart cycle. Measurement of cardiac output. Heart rate adjustment. The vascular system. Factors that determine blood pressure. Measurement of human blood pressure. The respiratory system. Normal ventilation and breathing control system. Transfer of blood gases and exchange of gases to tissues. Exchange of oxygen and carbon dioxide. Kidney function and anatomy: glomerular filtration, resorption and excretion of substances. Digestive system. Gastrointestinal tract structure and function. Gastrointestinal motility control. Gastrointestinal smooth muscle. General principles of endocrine physiology. Synthesis, storage and secretion of hormones. Hormonal action. Reproductive function. Synthesis and regulation of sex steroid hormone secretion. Age-related and gender-related reproductive changes. Male and female reproductive function
Teaching Methodology	The teaching methodology includes lectures and a tutorial offering the theoretical background for a better perception of some concepts of Physiology. Methods such as discussion, questions/answers, clinical case presentation, are used to enhance student's participation. Detailed notes with PowerPoint are used in the lesson.
Bibliography	(a) <u>Textbooks:</u> • Textbook of Medical Physiology. Guyton and Hall. 13th ed. Μετάφραση Παρισιάνος, 2018. • Textbook of Medical Physiology. Guyton and Hall. 13th ed. Elsevier, 2015. (b) <u>References:</u> • Physiology I & II. Robert M. Berne, Matthew N. Levy. Greek Publisher University of Crete, 2011 • "Physiology: A Core Text of Human Physiology with Self-Assessment".

	J.G. McGeown. Greek Publisher Pashalidis, 2009.
Assessment – Criteria	Midterm written exam 30% Presentation/project 10% Final written exam 60% The evaluation of the course is performed by (a) a written mid-term exam during the semester, which examines specific modules of the course and it accounts for 30% of the overall grade, (b) a written final exam, which examines all modules of the course, and it accounts for 60% of the overall grade. Students also have to prepare and present a small project. Students are prepared for the above written exams by discussion, questions/answers, pros/cons and case studies, related to the field of Physiology-pathophysiology, in the class. The final assessment of the students is formative and summative and is assured to comply with the subject's expected learning outcomes and the quality of the course.
Language	Greek, English