UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Promozione della Salute, Materno-Infantile, di Medicina Interna e Specialistica di Eccellenza “G. D’Alessandro”
ACADEMIC YEAR	2023/2024
BACHELOR'S DEGREE (BSC)	NURSING
SUBJECT	HUMAN PHYSIOLOGY
TYPE OF EDUCATIONAL ACTIVITY	A
AMBIT	10304-Scienze biomediche
CODE	91705
SCIENTIFIC SECTOR(S)	BIO/09
HEAD PROFESSOR(S)	CACCIABAUDO FRANCESCO — Professore a contratto — Univ. di PALERMO GIAMMANCO MARCO — Professore Associato — Univ. di PALERMO
OTHER PROFESSOR(S)	
CREDITS	5
INDIVIDUAL STUDY (Hrs)	75
COURSE ACTIVITY (Hrs)	50
PROPAEDEUTICAL SUBJECTS	15916 - HUMAN ANATOMY WITH ELEMENTS OF HISTOLOGY
MUTUALIZATION	
YEAR	1
TERM (SEMESTER)	2° semester
ATTENDANCE	Mandatory
EVALUATION	Out of 30
TEACHER OFFICE HOURS	**CACCIABAUDO FRANCESCO** Friday 11:00 12:00 Su piattaforma TEAMS, si richiede prenotazione tramite email istituzionale. **GIAMMANCO MARCO** Tuesday 09:00 11:00 Dipartimento di Discipline Chirurgiche, Oncologiche e Stomatologiche Via Liborio Giuffre, 5 90127 PALERMO (PA) Thursday 09:00 11:00 Dipartimento di Discipline Chirurgiche, Oncologiche e Stomatologiche Via Liborio Giuffre, 5 90127 PALERMO (PA)

DOCENTE: Prof. FRANCESCO CACCIABAUDO- *Sede GORDON*

PREREQUISITES	Knowledges of Chemistry,Physics, Biology, Biochemistry, Anatomy
LEARNING OUTCOMES	Students will mature understanding of the main operating mechanisms of organs and systems while developing the ability 'to organize an integrated view of the main functions of the body. Capacity to apply knowledge and understanding: students will acquire the ability to organize an integrated view of the main functions of the body as the basis for advancement in the study of pathophysiological mechanisms of major diseases. Students will also gain the ability to apply in nursing practice the knowledge gained on the functioning of the organs and understand the possible functional adaptations. Making judgments: limited to the main physiological parameters to be able to assess the deviation from the norm. Enable communication: capacity to expose the concepts in a clear and comprehensive developing the ability to communicate and disseminate clearly the knowledge acquired during the course independently explaining the possible applications in the nursing field. Learning capacity: ability to update the correctness of self-concepts learned during the course of Human Physiology and ability to integrate them with those of preparatory teachings. Students will also have the ability to mature to continue and deepen their studies using the knowledges gained from the study of Physiology
ASSESSMENT METHODS	Learnig evaluation will be carried out by means of written examinations integrated by optional oral examination. Every right response will have the value of two points. The examination will have a positive conclusion if almost 9 right responses will be presented by the candidate.
EDUCATIONAL OBJECTIVES	The module objectives are to put students on condition of: understanding the physical-chemical mechanisms and molecular basis of physiological cellular processes such as the membrane electrical polarization, the genesis of the Action Potential (excitability), the communication by means of synapses between cells, the muscular contraction, the transduction of physiological stimuli into electrical signals by receptor cells of Sensory Systems; describe the morphological and functional features of the blood; Understand the physical basis of Circulation and respiration as premise for the knowledge of the physiology of the cardio-circulatory, respiratory and excretory systems;understanding the mechanisms of nervous and humoral adjustements. These apparatuses and their coordination in the execution of specific tasks such as homeostasis of the internal medium osmolarity and of the extracellular fluid volume, acid-base equilibrium; regulation of heart and blood pressure range; The Execution muscular excercise. Understanding the functions of the nervous system, from the motor and perceptive to the psychic ones; its development and capacity to repair injuries; understanding the Physiology of the endocrine and digestive apparatus.
TEACHING METHODS	Frontal lessons integrated with exercitations
SUGGESTED BIBLIOGRAPHY	D.U. Silverthorn - Fisiologia, un approccio integrato, Casa Editrice Pearson Autori vari - Fisiologia Umana: Fondamenti - Casa Editrice Edi-Ermes C.L. Stanfield – Fisiologia, Edizioni EdiSES

SYLLABUS

Hrs	Frontal teaching
2	Biophysics water and solute transport across membranes General electrophysiology: the ionic basis of membrane potentials
3	The excitability 'phone: the resting potential to action potential Muscle striated and smooth muscle. neuromuscular transmission. Mechanisms of muscle contraction.
5	Cardiovascular system: Morphological and functional characteristics of blood and fluid and electrolyte balance; morphological and functional characteristics of the heart and blood vessels; Excitability and cardiac automatism; Electrocardiogram; The cardiac cycle; . Heart tunes; Physiology of the vascular tree: arterial system, capillary, venous system; Determination of blood pressure; lymphatic circulation; regulatory mechanisms of cardiac and blood pressure activity
5	Respiratory system: morphofunctional organization; respiratory-mechanical work of breathing; spirometry; alveolar-capillary gas exchange; transportation of respiratory gases in the blood; Hemoglobin dissociation curve; Mechanisms of chemical and nerve control of the respiratory activity; The participation of the breath at the plasma pH adjustment.
5	Renal system morphofunctional organization; Role of the various components of the nephron in urine formation; Glomerular filtration; Absorption and tubular secretion and excretion; Kidney contribution to the hydro-saline and pH balance; Contribution from the kidney to the blood volume and blood pressure regulation; Urination.

SYLLABUS

Hrs	Frontal teaching
10	Nervous system: Morpho-functional organization of the cemtral, peripheral and vegetative nervous system; glial functions; The interactions between excitable cells; Synapses; receptor cells and transduction; Functional anatomy of the sensory systems; Physiology of the somato-visceral sensitivity: tactile, thermal, proprioceptive and pain; Physiology of vision and hearing; Organization of the motor system; spinal mechanisms of motor coordination: reflex action, locomotion, role of interneurons; Posture: brainstem mechanisms; postural reflexes; vestibular apparatus and vestibular reflexes; neurophysiological tests in humans; Organization of voluntary movement: cortical areas, the cortico-spinal motor control systems; cerebellum; basal ganglia; EEG and sleep; higher nervous functions: language, memory, learning; Synaptic plasticity; neurotrophic factors; aging and cell death
10	Endocrine system: Various modes of action of hormones; The hypothalamic hormones and adeno-pituitary hormones; The endocrine glands controlled by the hypothalamus-pituitary axis; Hormonal control of blood glucose; The serum calcium control; endocrine function of thymus and epiphysis; hormonal controls on growth; thyroid hormones; adrenal hormones; surrenal hormones; Hormones in pregnancy
10	Gastro-intestinal system: Functional anatomy; Bioenergetics, basal metabolic rate and under vactivity; Motility. secretory functions; Digestion and absorption of proteins, carbohydrates and lipids; regulatory mechanisms: the CNS, the enteric brain and gastrointestinal hormones; The role of the liver; General principles of Physiology of Nutrition

DOCENTE: Prof. MARCO GIAMMANCO- *Sede NIGHTINGALE*

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