



UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Scienze Psicologiche, Pedagogiche, dell'Esercizio Fisico e della Formazione		
ACADEMIC YEAR	2023/2024		
BACHELOR'S DEGREE (BSC)	PHYSICAL EDUCATION AND SPORT SCIENCES		
INTEGRATED COURSE	HUMAN MORPHOLOGY AND BIOMECHANICS		
CODE	20672		
MODULES	Yes		
NUMBER OF MODULES	2		
SCIENTIFIC SECTOR(S)	M-EDF/01, BIO/16		
HEAD PROFESSOR(S)	PATTI ANTONINO	Ricercatore a tempo determinato	Univ. di PALERMO
OTHER PROFESSOR(S)	PATTI ANTONINO	Ricercatore a tempo determinato	Univ. di PALERMO
	PITRUZZELLA ALESSANDRO	Ricercatore a tempo determinato	Univ. di PALERMO
CREDITS	12		
PROPAEDEUTICAL SUBJECTS			
MUTUALIZATION			
YEAR	1		
TERM (SEMESTER)	1° semester		
ATTENDANCE	Not mandatory		
EVALUATION	Out of 30		
TEACHER OFFICE HOURS	<p>PATTI ANTONINO Monday 14:00 15:00 Il ricevimento presso gli uffici di Via Giovanni Pascoli, 6. Secondo piano, stanza 9. Previa prenotazione e-mail</p> <p>PITRUZZELLA ALESSANDRO Monday 11:00 14:00 Dipartimento Bionec, Sezione di Anatomia Umana Normale . Policlinico Via del vespro 129</p>		

DOCENTE: Prof. ANTONINO PATTI

PREREQUISITES	Knowledge of anatomy and biochemistry
LEARNING OUTCOMES	<p>The course aims to give students a comprehensive and integrated vision of the human body, its of these control systems of organs, processes that do the work and mechanisms normal conditions. The topics require studio founded by the student not solely or mainly on the ability to remember (mnemonic), but a study rational, based on an understanding of the mechanisms and processes described and the ability to to relate the knowledge acquired. The storage of data will often be obliged, for example of the values of physiological parameters of the organism, some to consider, "crucial" but will aimed at understanding of the studied processes and their control in order homeostasis, fundamental notion of physiology and below to each topic.</p> <p>At the end of the course the student must demonstrate that they understand how the various organs of the human body, their inclusion in the equipment, the general control mechanisms of these under normal conditions.</p>
ASSESSMENT METHODS	<p>The exam is an oral exam aimed at verifying the competences and skills to be acquired at the end of the course. The purpose of the questions is to verify knowledge of contents to be acquired at the end of the course, as well as analytical and expository skills. Knowledge check includes scrutiny of the capability to establish relationships between contents, theories, patterns and methodologies which have been an object of study during the course. As far as analytical skills are concerned, check will aim at verifying that the student has achieved at least one of the following goals: - make judgements and opinions about the disciplinary contents - understand applications and/or implications of the disciplinary contents within the specific discipline of reference - set the disciplinary contents within the professional, technological and sociocultural setting of reference. The student will have to answer at least three questions in the oral form about aspects of the syllabus with reference to the suggested textbooks. The exam aims at verifying knowledge and understanding of topics, interpretative competence and autonomy of judgement of concrete cases. The passing grade threshold will be considered reached if the student shows to have acquired the topics of the specific subject matter and is able to solve specific concrete cases as well as to correctly convey knowledge with satisfactory expository skills. Below the above-mentioned threshold, the exam will be considered unsatisfactory. The more the student can interact with his examiner showing mastery of language, of the specific subject matter and ability to convey his/her knowledge of the topics of the specific field of reference, the more the assessment will be positive. The latter will be expressed by 18 to 30-30 with honours marks.</p>
TEACHING METHODS	<p>Frontal lessons. Number of hours reserved for tutored activities:96 PERIOD OF LESSONS: Second year (FIRST AND SECOND HALF)</p>

**MODULE
HUMAN ANATOMY I**

Prof. ALESSANDRO PITRUZZELLA

SUGGESTED BIBLIOGRAPHY

Martini F.H. e coll.: Anatomia umana. Edises ISBN 978 88 3319 025 9
 Barni T. e coll.: Anatomia dell'apparato locomotore. Edises, ult. ed ISBN 978 88 7959 495 0
 Barone R. e coll.: Anatomia Umana (basato sul Prometheus). Edises 2021 ISBN 978 88 3623 0433

AMBIT	50097-Biomedico
INDIVIDUAL STUDY (Hrs)	108
COURSE ACTIVITY (Hrs)	42

EDUCATIONAL OBJECTIVES OF THE MODULE

Knowledge of anatomical structures of the human movement in order to develop skills to develop skills to plan and manage the physical activity

SYLLABUS

Hrs	Frontal teaching
10	General Anatomy - . Organization of living beings and, in particular, of the human body. The systems and organ systems and their classification . The anatomical terminology of the external forms of the human body. The cavity 'bust. The anatomical position and terms of position. The terms of movement. Generality 'on the cell. Definition of tissue, organ class. The epithelial tissue and glandular epithelia. The trofomeccanici tissues. Skeletal connective tissues. The contractile tissue. The nervous tissue.
4	The bony skeleton: spine. the rib cage, the skull, the shoulder girdle and upper limb bones, pelvic girdle and lower limb bones.
2	Joints: classification and generality.
2	Morphology, architecture, classification and function of muscles.The mechanical muscle.
2	Shoulder joint; movements and motor muscles. The elbow joint; movements and motor muscles.
2	Radiocarpal joint and hand joints
2	Hip joint femoral; movements and motor muscles.
2	The knee joint; movements and motor muscles.
2	Articulation ankle and foot joints. Movements of joints and motor muscles.
2	The joints of the spine; movements and motor muscles.
6	The circulatory system. The heart, arteries, veins, capillaries. The largest circulation, the small circulation, fetal circulation. The lymph, lymph vessels and lymph nodes. bone marrow, spleen, thymus.
4	The respiratory system. The airways: nose, nasopharynx, larynx, trachea and bronchi. The bronchioles. The lungs and lung hierarchies. Lung structure. The pleura.
2	Skin and appendages.

**MODULE
ANALYSIS OF MOVEMENT**

Prof. ANTONINO PATTI

SUGGESTED BIBLIOGRAPHY

Rolf Wirhed "Abilita' Atletica e Anatomia del Movimento", Edi-Ermes, ult. edizione

AMBIT	10683-Attività formative affini o integrative
INDIVIDUAL STUDY (Hrs)	108
COURSE ACTIVITY (Hrs)	42

EDUCATIONAL OBJECTIVES OF THE MODULE

The aim of the course is to provide the basic cognitive and methodological tools relating to a particular context of the biomechanics of human movement. To this end, the biomechanical and neurophysiological aspects of motor control will be presented in an integrated vision. Particular attention will be dedicated to the applicative effects in fields such as motor science and sports medicine.

SYLLABUS

Hrs	Frontal teaching
5	Definition of force, physical quantities relevant for the study of motions, scalar and vector quantities, sum of vectors, decomposition of vectors
7	Muscle strength, Newton's three laws, static measurement of forces, weight force, constraint reactions, normal force, static and dynamic sliding friction, coefficients of friction, air resistance
10	Elements of kinematics Linear kinematics. Displacement, velocity and linear acceleration. Parabolic motion. Angular kinematics. Polar coordinates. Angular displacement, velocity, and acceleration. Uniform circular motion. Muscle mechanics. The force-velocity curve and the force-length curve. Muscle architecture and specific tension. Mechanical properties of the different types of muscle fibers. Moment of a force, muscle insertion point, and mechanical implications, the balance of suspended bodies, the center of gravity of a homogeneous body, center of gravity of a non-homogeneous body
5	The levers, the physical characteristics of a lever, the three types of levers, the levers applied to the human body, balance of forces. Muscles and joints. Anatomical planes.
6	Strength and angular velocity of movement, muscle recruitment, strength training, flexibility training
9	Gait analysis, posturographic analysis, movement analysis: Theoretical-practical applications