



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)	BARONE ROSARIO	Professore Associato	Univ. di PALERMO
OTHER PROFESSOR(S)	BARONE ROSARIO	Professore Associato	Univ. di PALERMO
	PATTI ANTONINO	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	BARONE ROSARIO		
	Friday	11:00 13:00	Sezione Anatomia Umana e Istologia, Dipartimento Bionec
TEACHER OFFICE HOURS	PATTI ANTONINO		
	Monday	14:00 15:00	Microsoft teams - Codice: p78ug2f

DOCENTE: Prof. ROSARIO BARONE

PREREQUISITES	Knowledge of biology.
LEARNING OUTCOMES	Students will have to demonstrate knowledge and understanding in a post-secondary field of study in the field of human anatomy and biomechanics. Students must achieve the ability to apply their knowledge and understanding skills in a manner that demonstrates a professional approach to their work, and must possess adequate skills both to devise and support arguments and to solve problems in their field of study. Students must have the ability to collect and interpret data in the field of human anatomy and biomechanics deemed useful in determining independent judgments, including reflection on social, scientific or ethical issues related to them. Students must be able to communicate information on organs, systems, tissues of the human body, ideas, problems and solutions to specialist and non-specialist interlocutors. Students will have to develop the learning skills that are necessary for them to undertake further studies with a high degree of autonomy.
ASSESSMENT METHODS	The assessment includes an oral exam for each module, during which the student will have to answer at least 3-4 questions. The final evaluation is given by the average of the marks of the two oral tests taken for each module and foresees the vote out of thirty. The evaluation takes into account the following methods: 30-30 with honours (excellent), corresponding to 'excellent knowledge of topics, excellent use of language, good analytical skills, the student can implement his\her knowledge to solve the submitted issues'; 26-29 (very good), 'good mastery of topics, very good use of language, the student can implement his\her knowledge in order to solve the submitted issues'; 24-25 (good), corresponding to 'basic knowledge of the main topics, fair use of language, with moderate capability to independently implement knowledge to solve the submitted issues'; 21-23 (satisfactory), 's\he doesn't possess full mastery of the main teaching topics but s\he possesses knowledge of them, satisfactory use of language, poor capability to independently implement the acquired knowledge'; 18-20 (passing grade), 'very poor basic knowledge of both the main teaching topics and the technical skills, no or very poor capability to independently implement the acquired knowledge'; unsatisfactory, 's\he doesn't possess an acceptable knowledge of the contents of the topics dealt with during the course'.
TEACHING METHODS	Frontal lectures, workshops, labs

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

MODULE HUMAN ANATOMY I

Prof. ROSARIO BARONE

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 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.