UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Biomedicina, Neuroscienze e Diagnostica avanzata
ACADEMIC YEAR	2016/2017
BACHELOR'S DEGREE (BSC)	PHYSIOTHERAPY
INTEGRATED COURSE	SCIENCE OF MOVEMENT - INTEGRATED COURSE
CODE	15193
MODULES	Yes
NUMBER OF MODULES	2
SCIENTIFIC SECTOR(S)	MED/34, M-EDF/01
HEAD PROFESSOR(S)	LETIZIA MAURO GIULIA Professore Ordinario Univ. di PALERMO
OTHER PROFESSOR(S)	DI RAIMONDO DOMENICO Professore Associato Univ. di PALERMO LETIZIA MAURO GIULIA Professore Ordinario Univ. di PALERMO
CREDITS	9
PROPAEDEUTICAL SUBJECTS	
MUTUALIZATION	
YEAR	1
TERM (SEMESTER)	2° semester
ATTENDANCE	Mandatory
EVALUATION	Out of 30
TEACHER OFFICE HOURS	**DI RAIMONDO DOMENICO** Friday 12:00 14:00 **LETIZIA MAURO GIULIA** Monday 12:00 13:00 Biblioteca della Cattedra di Medicina Fisica e Riabilitativa

DOCENTE: Prof.ssa GIULIA LETIZIA MAURO

PREREQUISITES	The student must have adequate anatomical and physiological knowledge of the musculo-scheletric and neurological apparattes
LEARNING OUTCOMES	Knowledge and comprehension skills To know the structure and the normal functioning of the body as a complex of biological systems in continuous adaptation. To be able to interpret morphological and functional abnormalities of the body in diseases associated with alterations. To know and to be able to implement biochemical, pharmacological, psychological and social interventions managing acute illness in rehabilitation. Ability to apply knowledge and understanding To be able to perform physical and mental status examination of the patient. To be able to properly evaluate the health problems and to know how to give advise to patients, taking into account physical, psychological, social and cultural factors.To learn about the appropriate use of human resources, the diagnostic and therapeutic interventions and the technologies applied in healthcare. To be aware of the roles and responsibilities of the other health personnel in providing health care to individuals, populations and communities. To know the basics in order to make right choices Making judgments To learn how to efficaciously plan and efficiently manage one's time and activities to face uncertain situations, and to get the ability to quickly adapt to sudden changes. To develop a sense of personal responsibility in taking care of patients Communication skills To listen carefully in order to understand and synthesize relevant information. To put into practice the communication skills to facilitate understanding with patients and their families, enabling them to make decisions as equal partners. To communicate effectively with colleagues, with the Faculty, with the community, with other sectors and with the media. To interact with other professional roles involved in patient care through an efficient teamwork. Learning ability To be able to collect, organize and correctly interpret health and biomedical information from different available resources and databases.
ASSESSMENT METHODS	Oral test- Grade out of thirty The examination is performed through the two or thrre questions regarding the topic developed during the lessons Excellent 30-30 laude excellent knowledge of the topics, excellent properties of language, good analytical ability, the student is able to apply knowledge to solve problems proposed very good 26-29 Good mastery of the subjects, full ownership of the language, the student is able to apply knowledge to solve problems proposed good 24-25 Basic knowledge of the main topics, discrete properties of language, with limited ability to independently apply the knowledge to the solution of the proposed problems satisfactory 21-23 He does not have full command of the main teaching subjects but it has the knowledge, satisfactory property language, poor ability to independently apply the knowledge acquired sufficient 18-20 minimum basic knowledge of the main teaching and technical language issues, very little or no ability to independently apply the knowledge acquired Insufficient does not have an acceptable knowledge of the contents of the topics
TEACHING METHODS	Frontal lessons

MODULE
PHYSICAL ACTIVITY

Prof. DOMENICO DI RAIMONDO

SUGGESTED BIBLIOGRAPHY

•Cinesiologia: Il movimento umano – Vincenzo Pirola – Edi Ermes
•Attivita' fisica per la salute – Pasqualina Buono – Edi Ermes
•Apprendimento motorio: concetti ed applicazioni - Bortoli e Robazza – Edizioni Luigi Pozzi
•Articoli dalla letteratura scientifica
•Appunti dalle lezioni

AMBIT	10326-Scienze interdisciplinari
INDIVIDUAL STUDY (Hrs)	45
COURSE ACTIVITY (Hrs)	30

EDUCATIONAL OBJECTIVES OF THE MODULE

To provide the fundamental knowledge related to the terminology, the anatomical and physiological bases and the mechanisms that regulate the development of the motor activities, the biomechanics and the ability of the movement. To make to learn the principal theories and methodology of study of the human movement in a cognitive-behavioral perspective, undelying both neurological and biomechanic mechanisms aimed to the production of the movement, to the control of the volontary movement and to the motor learning. To favor the understanding of the concept of adapted motor activity in its different aspects.

SYLLABUS

Hrs	Frontal teaching
1	Brief description of anatomy and physiology of the locomotor system
1	Brief descrition of the anatomy and physiology of the nervous system
2	Biomechanics of the locomotor system
2	Metabolic handling during motor activity
1	Classifications of the human movement
2	Development of the movement
2	Evolutionary steps of the motor development. Automatic postural reactions
2	Different types of movement (voluntary, automatic, automated, spinal reflexes, pathological movements). Models of study of the movement.
2	Motor control. Mechanisms of elaboration of the information in the execution of the movement (identification of the stimuli, selection and planning of the motor resposnse). Control's systems open and closed-loop.
1	Theories and types of feedback. Mechanisms related to the correction of errors during movement execution
1	Motor program and parametrisation of the movement. Anticipatory movements
1	election and planning of the motor response
1	Concepts of the motor learning. Stadiums and classifications of the motor learning. Development of the basal motor schemes.
1	Methodological aspects of motor learning (quantity of the practice, distribution, variability, organization and contextual interference, mental practice, practice for parts and global, transfer, strategy and metastrategy).
1	Styles of teaching
1	Application aspects of movement (standing position, demabulation, run, jump, kick, twrow)
2	The motor abilities
2	Motor qualities (Strength and test of measurement, Resistance, Rapidity, Agility, Dexterity, Equilibrium). Psychic qualities
1	General coordinate abilities. Special coordinate abilities
2	Training: technique and didactics. The training load. Motor reserve of adaptation.
2	Physical activity adapted for specific classes of subjects (elderly, diabetic, hypertensives, obese, etc.)

MODULE
PHYSICAL AND REHABILITATIVE MEDICINE

Prof.ssa GIULIA LETIZIA MAURO

SUGGESTED BIBLIOGRAPHY

Cinesiologia: Il movimento umano – Vincenzo Pirola – Edi-Ermes Il senso del movimento – Berthoz A. – McGraw-Hill
Apprendimento motorio: concetti ed applicazioni –Bortoli e Robazza – Edizioni Luigi Pozzi –Articoli dalla letteratura scientifica

AMBIT	10329-Scienze della fisioterapia
INDIVIDUAL STUDY (Hrs)	90
COURSE ACTIVITY (Hrs)	60

EDUCATIONAL OBJECTIVES OF THE MODULE

The purpose of this course is to provide a basic knowledge of the terminology, the concepts and the principles that are fundamental for the auxological process involved in the development of motor activity; to teach the fundamentals of theory and methodology of human movement in a cognitive-behavioral perspective, based on the neurological and biomechanical processes involved in motor learning and in the execution and the control of the movement

SYLLABUS

Hrs	Frontal teaching
6	The shoulder •Shoulder physiology •Movements of the shoulder girdle •The three steps of adduction, forward roll and flexion •Muscles •Adduction and backward roll
3	The elbow: flexion-extention •Elbow physiology •Ligaments and muscles •Range and limitations of flexion-extention •Joint coaptation factors
3	The prono-supination •Definition •Physiological anatomy of proximal and distal radio-ulnar articulation •Muscles •Prono-supination mechanical disorders
3	The wrist •Articular complex and movements •Radiocarpal and midcarpal joints •Muscles
6	The hand •Architecture of the hand •Carpal bones •Palmar concavity •Metacarpophalangeal and Interphalangeal joints •Tendon pulleys and sheaths •Muscles •The trapeziometacarpal and metacarpophalangeal joints of the thumb •The opposition movement of the thumb •Way of grasping
3	The hip •Hip movements •Capsule and ligaments •Joint coaptation factors •Muscles •Inversions of some muscle actions
6	The knee •Knee physiology •Movements and muscles •Articular capsule and adipose ligaments •Menisci •Collateral and cruciate ligaments
3	The ankle • The physiology of the ankle joint • Movements • The ligaments of the ankle joint • The anteroposterior and trasversal stability • The peroneal-tibial joints
3	The foot • Subtalar and mid-tarsal articulation • Subtalar and mid-tarsal movements •Anterior tarsus and tarsal-metatarsal joints • The muscles and tendon sheaths • The sole of the foot
3	The plantar arch • Architecture of the plantar arch • The three arches of the plantar arch • Distribution of static loads and deformation • Dynamics of the plantar arch of the foot during walking • Adaptation of the plantar arch to the ground
3	The spine •The physiology of the spine •The movements and the intervertebral connecting elements •Structure of the intervertebral disc •Clinical evaluation of the overall range of spinal movements
3	The pelvic girdle and sacroiliac joints •The pelvic girdle •The sacroiliac joint physiology •The ligaments of the sacroiliac •The nutation and counternutation •The symphysis and sacrococcygeal symphysis
3	Lumbar spine •The lumbar spine •The ligament system •Movements and muscles •Lumbosacral spine •Statics of the lumbar spine in the standing position
6	Dorsal spine and breathing •Costovertebral joints •Movements and muscles •Chest deformities •Synergic/antagonistic relationship between diaphragm and abdominal muscles •Respiratory physiology

3	Cervical spine •The cervical spine and its movements •The atlantoaxial and atlanto-occipital joints •The movements in the atlantoaxial, atlanto-odontoid and atlanto-occipital joints •Ligaments and muscles • Motor compensation of the sub-occipital spine •Balance of the head on the cervical spine •Relationships between spinal cord and cervical spine
3	The step and the walking