# UNIVERSITÀ DEGLI STUDI DI PALERMO

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| **DEPARTMENT** | Scienze Psicologiche, Pedagogiche, dell'Esercizio Fisico e della Formazione | | |
| **ACADEMIC YEAR** | 2021/2022 | | |
| **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)** | PALMA ANTONIO | Professore Ordinario | Univ. di PALERMO |
| **OTHER PROFESSOR(S)** | PALMA ANTONIO<br>ZANGLA DANIELE | Professore Ordinario<br>Professore Associato | Univ. di PALERMO<br>Univ. di PALERMO |
| **CREDITS** | 12 | | |
| **PROPAEDEUTICAL SUBJECTS** | | | |
| **MUTUALIZATION** | | | |
| **YEAR** | 1 | | |
| **TERM (SEMESTER)** | 1° semester | | |
| **ATTENDANCE** | Not mandatory | | |
| **EVALUATION** | Out of 30 | | |
| **TEACHER OFFICE HOURS** | **PALMA ANTONIO**<br>Wednesday 10:00 12:00 Via Giovanni Pascoli N. 6 o su piattaforma Teams da concordare tramite e-mail.<br>**ZANGLA DANIELE**<br>Tuesday 16:00 17:00 via Pascoli o via teams previa comunicazione | | |

**DOCENTE:** Prof. ANTONIO PALMA

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| **PREREQUISITES** | Knowledge of biology |
| **LEARNING OUTCOMES** | Students have demonstrated knowledge and understanding in a field of anatomic study that builds upon and their general secondary education, and is typically at a level that, whilst supported by advanced textbooks, includes some aspects that will be informed by knowledge of the forefront of their field of study;<br>- can apply their knowledge and understanding in a manner that indicates a professional approach to their work or vocation, and have competences typically demonstrated through devising and sustaining arguments and solving problems within their field of anatomic study;<br>- have the ability to gather and interpret relevant data in field of anatomic study to inform judgements that include reflection on relevant social, scientific or ethical issues;<br>- can communicate information, ideas, problems and solutions to both specialist and non-specialist audiences about tissue, organs and systems of the human body<br>- have developed those learning skills that are necessary for them to continue to undertake further study with a high degree of autonomy. |
| **ASSESSMENT METHODS** | The assessment provides two moments:<br>1) a written in itinere exam<br>2) a orale exam<br>2) Written test: The exam consists in questions with multiple choice. The questions are structured so as to allow students to<br>formulate their answers through the possibility to compare the submitted answers. Regarding oral in itinere exam, the student will have to answer at least 3-4 questions in the oral form. The exam aims at verifying knowledge, 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\her 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.<br>2) Oral exam: Regarding oral in itinere exam, the student will have to answer at least 3-4 questions in the oral form. The exam aims at verifying knowledge, interpretative competence and autonomy of judgement of concrete cases.<br>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\her 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. The final assessment included the mean value of two exams/30. The assessment has a final grade included in the following range: 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<br>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<br>skills, no or very poor capability to independently implement the acquired knowlege'; 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**
**HUMAN ANATOMY I**

*Prof. ANTONIO PALMA*

| **SUGGESTED BIBLIOGRAPHY** | |
|---|---|
| Martini F.H. e coll.: Anatomia umana. Edises<br>Barni T. E coll.: Anatomia dell'apparato locomotore. Edises, ult. ed | |
| **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 |
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| 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. DANIELE ZANGLA*

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| **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** | |
| Teaching purpose is to provide the knowledge and basic methodological tools related to a particular context biomechanics of human movement . To this end they will face in an integrated vision biomechanical aspects and neurophysiology of motor control. Particular attention will be devoted to the application outcomes in areas such as science motor and sports medicine . | |

## SYLLABUS

| Hrs | Frontal teaching |
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| 5 | Definition of force , relevant physical parameters for the study of the motions , and scalar Vector , the sum of the vectors , the decomposition of carriers |
| 7 | muscle strength and decomposition vector , the three laws of Newton , static measure of strength, weight force , reaction forces , the force normal , static and dynamic sliding friction , friction coefficient , air resistance |
| 5 | centrifugal and centripetal force , circular motion , work , power , energy concept , potential energy, kinetic energy, conservation of energy , the time of a force |
| 5 | moment of a force applied to the human joints , muscle insertion point and mechanical implications , the balance of the suspended bodies , center of gravity of a homogeneous body , a center of gravity of 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 speed of motion , muscle recruitment , strength training , flexibility trainin |
| 5 | gait analysis |
| 4 | video analysis with Kinovea |