



# 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	THEORY AND METHODOLOGY OF SPORT ACTIVITIES - INTEGRATED COURSE		
CODE	11521		
MODULES	Yes		
NUMBER OF MODULES	2		
SCIENTIFIC SECTOR(S)	M-EDF/02		
HEAD PROFESSOR(S)	BELLAFIGLIORE MARIANNA	Professore Ordinario	Univ. di PALERMO
OTHER PROFESSOR(S)	BIANCO ANTONINO	Professore Ordinario	Univ. di PALERMO
	BELLAFIGLIORE MARIANNA	Professore Ordinario	Univ. di PALERMO
CREDITS	12		
PROPAEDEUTICAL SUBJECTS	03380 - HUMAN PHYSIOLOGY - INTEGRATED COURSE		
MUTUALIZATION			
YEAR	3		
TERM (SEMESTER)	2° semester		
ATTENDANCE	Not mandatory		
EVALUATION	Out of 30		
TEACHER OFFICE HOURS	<b>BELLAFIGLIORE MARIANNA</b> Monday 10:00 13:00 Microsoft teams - codice: 2fkgv90 <b>BIANCO ANTONINO</b> Tuesday 11:00 15:00 Via Giovanni Pascoli 6. 2 piano		

**DOCENTE:** Prof.ssa MARIANNA BELLAFFIORE

<b>PREREQUISITES</b>	All students interested to this course have to possess basic knowledge concerning human anatomy and physiology, human movement components and structures, motor skills and physical abilities, movement biomechanics.
<b>LEARNING OUTCOMES</b>	Adequate knowledge of scientific terminology and theoretical understanding of texts and scientific publications regarding the contents specified below. Application skills and methodological competences, such as to allow graduates to face technical problems, with particular reference to the structuring of training programs and functional evaluation. Ability in oral, written and multimedia communication to exchange general information, data presentation, dialogue with experts from other sectors and consequent ability to work in groups.
<b>ASSESSMENT METHODS</b>	<p>As for the module of Theory and Methodology of Sport Training, the exam is an oral exam aimed at verifying the competences and skills to be acquired at the end of the course. In the module of Motorial and Aptitude Evaluation Methods for Sports, the exam test will be written and will consist of 19 multiple choice questions and 4 open-ended questions. 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 at least one of the following goals: -S\he can give judgements and opinions about the disciplinary contents -S\he can understand applications and/or implications of the disciplinary contents within the specific discipline of reference -S\he can set the disciplinary contents within the professional, technological and sociocultural setting of reference. The student will have to answer at least two\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\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. A face to face interview will be provided to the students. A number of 3-4 questions will be administered according to the course topic and the learning outcomes. 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 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 language, 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'.</p>
<b>TEACHING METHODS</b>	The course provides lectures in a classroom, in the laboratory of functional evaluation and in a sports facility, and case studies.

## MODULE THEORY AND METHODOLOGY OF SPORT TRAINING

*Prof. ANTONINO BIANCO*

### SUGGESTED BIBLIOGRAPHY

- Allenamento Ottimale. Jurgen Weineck. Calzetti & Mariucci. 2008
- La periodizzazione dell'allenamento sportivo. Tudor O. Bompà. Calzetti & Mariucci. 2015
- Paoli A, Neri M, Bianco A. Principi di Metodologia del Fitness. Erika Edizioni. 2013
- La Torre A. Allenare per vincere. Editore: Edizioni Scuola dello Sport. Novembre 2017
- Mantovani C. Insegnare per allenare. Edizioni Scuola dello Sport. Novembre 2017

<b>AMBIT</b>	50101-Discipline motorie e sportive
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<b>INDIVIDUAL STUDY (Hrs)</b>	98
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<b>COURSE ACTIVITY (Hrs)</b>	52
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### EDUCATIONAL OBJECTIVES OF THE MODULE

The aim of the course is to provide knowledge about theory e technique of the most popular sport activities. In more details all team sport and individual sport fundamentals, respectively. All rules of principal sport activities will be provided. Moreover, all fundamentals of training periodization and strength and conditioning will be provided. All training periodization theories will be presented and the most updated will be implemented as case studies or case report.

## SYLLABUS

Hrs	Frontal teaching
5	course introduction. Training methodology and its evolution during the last decades.
5	Exercise physiology. The energetic systems. The muscle metabolism.
5	The muscle contraction and its ability to generate strength, power and all related power indexes.
5	Fundamentals of movements dynamics. Applied biomechanics to elite movements. Fundamentals of thermodynamics.
5	The levers. The force production and all different kind of force. The assessment of power, maximal strength, explosive strength and endurance
5	Macrocycle, mesocycle, microcycle. All different kind of training periodization.
5	Over Training, Over Reaching. All different strategies for recovery (active, passive and so on).
6	Practical lesson: conditioning programs in sport activities
2	Practical lesson: conditioning programs in gym context.
3	Practical lessons: Fundamentals of team sports. Training methodology to improve skills and technique.
6	Practical lesson: Case studies in power training including different kind of modulation of (Density, Volume, frequency and duration).

## MODULE MOTORIAL AND APTITUDE ASSESSMENT METHODS FOR SPORTS

*Prof.ssa MARIANNA BELLAFFIORE*

### SUGGESTED BIBLIOGRAPHY

Miller T. NSCA's guide to tests and assessments. Human Kinetics. 2012.  
 Winter E.M., Jones A.M., Davison R.C., Bromley P.D., Mercer T.H. Test per lo sport e l'attività fisica. Linee guida per test fisiologico-sportivi e clinico-fisiologici. Calzetti & Mariucci Editori, Torgiano (PG), 2010.  
 Reiman M.P., Manske R.C. Functional testing in human performance. Human Kinetics, 2009.  
 Dispenza A. La valutazione in educazione fisica. Società stampa sportiva. Roma. 1992.  
 Carbonaro G., Madella A., Manno F., Merni F., Mussino A. La valutazione nello sport dei giovani. Società stampa sportiva. Roma. 1988.

<b>AMBIT</b>	50101-Discipline motorie e sportive
<b>INDIVIDUAL STUDY (Hrs)</b>	98
<b>COURSE ACTIVITY (Hrs)</b>	52

### EDUCATIONAL OBJECTIVES OF THE MODULE

Acquisition of knowledge and skills on methods and tools of functional assessment in the exercise and sport field. After completing the course, the student will be able to plan independently an evaluation program of the motor capacities and exercise training control.

## SYLLABUS

Hrs	Frontal teaching
3	Presentation of the course program and exam modalities. Definition of functional evaluation. General and specific aims of the functional assessment. General characteristics of the motor assessment tests. Validity, reproducibility, reliability, objectivity, specificity, protocol.
3	Direct tests. Indirect tests. Maximal tests. Sub-maximal tests. Field tests. Laboratory tests. Batteries of tests. Definition of anthropometry. Methods for the evaluation of anthropometric parameters. Body mass index, Livi's weight index, Scelico- Cormico's index, Grant's index. Method of the circumferences.
3	Definition of body composition. Fat Free Mass (FFM). Fat Mass (FM). Indirect methods and doubly indirect for the evaluation of body composition. Densitometry. Skinfold thickness. Bioimpedentiometry.
3	Definition of joint mobility and muscle flexibility. Test to evaluate the flexibility of shoulders. Tests to assess the mobility of the trunk (Sit and reach test, Trunk lift, Spinal Mouse®). Test to evaluate the mobility of the lower limbs. Test to evaluate the mobility of the upper limbs. Tests to assess the mobility of the ankles.
4	Evaluation of coordination skills. Differentiation or modulation of strength (throw the basketball forward and back at 50% by sitting position. Reactivity (response time to visual and acoustic signals). Balance (Translocation on the beam). Rhythmicity (race upbeat on site; tapping). Orientation in space. Combination (Mixer). Körperkoordinationstest Für Kinder (KTK) test.
3	Evaluation of motor and sports skills in children. Self-assessment and peer review. Quantitative and qualitative evaluation through the observation. The use of the circuits for testing and evaluation.
3	Direct methods for the evaluation of strength: muscle biopsy, electromyography, magnetic resonance imaging. Isometric dynamometry. Morehouse's strength index. Dal Monte's global torque index and relative strength index. Dinamografia isometric. Curve force / time (maximum strength). Force / speed curve. Peak of moment of force. Verchoshansky's index. Method of maximum single repetition (1-RM). Vertical jump on dynamometric platform. Optojump. Squatting jump test. Counter movement jump test. Standing long jump test. Abalakov Test. Sergeant test. Throw of the weighted ball. Push up test. Cin up test. Sit up test.
3	Classification of the sports activities from a metabolic point of view. Anaerobic alactacid metabolism. Factors limiting the anaerobic alactacid metabolism. Direct tests for the assessment of anaerobic alactacid metabolism: muscle biopsy, MRI, analysis of blood metabolites. Single jump test. Margaria and Kalamen's test. Wingate test 10 s. Bosco Tests 15s. Sprint Test.
3	Evaluation of the anaerobic lactate metabolism. Factors limiting the anaerobic lactate metabolism. Direct tests (muscle biopsy, magnetic resonance imaging; blood lactate; acid-base balance). Measurement of physiological parameters. Measurement of mechanical parameters (constant power test; resistance tests at constant time). De Bruyn-Prevost's test. Wingate test 30 s.
3	Evaluation of the aerobic metabolism. Evaluation of the basal metabolism. Relationship between oxygen consumption and intensity of physical activity. Definition of maximum oxygen consumption.

3	Direct and indirect tests to evaluate the maximum oxygen consumption in the field and lab (triangular and rectangular test). Maximal tests (Cooper test, Leger test, Balke test, Bruce test, Yo Yo intermittent endurance test, Yo Yo intermittent recovery test). Sub-maximal test (1-mile Rockport Fitness Walking Test; 6 min walking test; test di Astrand/3-Minute Step Test; test di Margaria; test di Fox). Assessment of oxygen consumption kinetic, ventilatory oxygen equivalent; ventilatory carbon dioxide equivalent, respiratory quotient, EPOC). Direct and indirect Evaluation of anaerobic threshold (Mader, Wasserman, Conconi).
3	Evaluation of the exercise training load. Parameters of external and internal workload. Methods and instruments for the assessment of external and internal workload in individual and team sports.
3	Using the pinch caliper and the impedancemeter for measuring the amount of fat mass. Measurement of body circumferences. Measurement of coordination skills. Measuring muscle flexibility. Measuring the strength of horizontal and vertical jump. Measurement of the maximum strength. Measuring the resisting strength.
3	Processing of observations grids for the evaluation of motor skills. Planning of technical circuits for evaluation of sports skills.
3	Using the heart rate monitor. Manual heart rate measurement. Using the Borg scale. Measurement of aerobic capacity with field tests.
3	Using OptoJump. Using the Monark bike. Measurement of maximal, explosive, explosive-elastic, reactive-elastic and endurance strength.
3	Using metabolimeter. Measurement of basal VO <sub>2</sub> , VO <sub>2</sub> max, anaerobic threshold, respiratory quotient.