



Course Unit: 956315 - Exercise Physiology I

Year 1 Semester 2 ISCED Code: 1014 ECTS: 4

Type of Course Unit: Compulsory Delivery Mode: Face-to-face Language of Instruction: Portuguese

COURSE COORDINATOR: Nuno Eduardo Marques de Loureiro

HOURS OF WORK

TOTAL HOURS	Contact Hours								Hours in autonomous work
	Theory	Theory and practice	Practical and laboratory work	Field work	Seminar	Internship	Tutorial guidance	Other	
100	20	15	10						55

Prerequisites (if applicable): <<Max 500 characters with spaces>>

LEARNING OUTCOMES (knowledge, skills and competence)

- Characterize the physiology of the exercise;
- Clarify and characterize the fundamental concepts of movement and energy of movement;
- Master the rules of biological/physiological adaptation and structural principles of sports training;
- Knowing the mechanisms of physiological adaptation and sports training;
- Conceptually define the cardio respiratory function and its relation to performance;
- Master and instrumentalize applying the components and characteristics of the environmental influences over the performance

CONTENTS

- Block I - Energy for the Movem.
- Chapter 1 - Energy and ATP
- Ch. 2 - Different ways of obtaining the ATP
- Ch.3 - Sources of ATP production
- Ch.4 – Transf. of Energy in Motion
- Ch.5 - Measur. of human energy consumption
- Ch.6 - Energy consumption during rest and PA
- Ch.7 – Individual differences and measurement capabilities of the individual energy
- Ch.8 - Fatigue
- Section II - Cardio-Respiratory Function and Performance
- Ch.9 - Cardiovascular System
- Ch.10 - Regulation of breathing during exercise
- Ch.11 - cardio-respiratory adaptations to training
- Section III - Fundamentals of Movement
- Ch12 - Skeletal muscle: structure and function

Ch.13 - Muscular Control of the movement

Ch.14 - The type of muscle fibre and its importance in performance

Ch.15 - neuromuscular adaptations to strength training

DEMONSTRATION OF THE CONTENTS COHERENCE WITH THE COURSE UNIT'S LEARNING OUTCOMES

This curricular unit provides in its organization the systematization of the knowledge related to the fundamentals of the study of processes that underpins all knowledge in this discipline in the phenomenon of physiology as a support to training and sports preparation.

When performing physical exercise one can verify a chain of physiological phenomena that are complementary and which are the basis of sporting success or failure.

The main physiological patterns will be covered and the way they change according to the different types of exercise

TEACHING METHODOLOGIES

During the lessons the work might assume the following dimensions:

Expositive lessons

Individual papers

Work Group

DEMONSTRATION OF THE COHERENCE BETWEEN THE TEACHING METHODOLOGIES AND THE LEARNING OUTCOMES

The theoretical and practical nature of this curricular unit justifies the use, in a complementary way, of active methodologies with a strong practical component associated with theoretical exposition frequently used with audiovisual media, as well as bibliographical research.

The presentation practice by the students to the group-class of the conducted research results, in an autonomous way and supervised by the teacher, is recurrent.

EVALUATION METHODS

The assessment in this curricular unit consists of: normal season – Written test and work group. Appeal season – written examination

MAIN BIBLIOGRAPHY

McArdle, W., Katch, F. & Katch, V. (2002) Fundamentos da Fisiologia do Exercício. São Paulo. Guanabara Koogan.

Wilmore, J., Costill, D., Kenney, W. (2017) Fisiologia do esporte e do exercício. São Paulo. Manole

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