UNIVERSIDADE LUSÍADA
LISBOA

Course Unit Program
Complements of Physiological Anatomy

Academic Year 2025/2026

## 1. Organic Unit

Faculty of Business and Economic Sciences

## 2. Course

Sport Organization Management

## 3. Cycle

1st

## 4. Course Unit

Complements of Physiological Anatomy (C1113)

## 5. Scientific Area

## 6. Curricular Year

2nd

## 7. Type of Curricular Unit / Semester

1st Semester



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## 8. Class type and workload (work time)

| | |
|---|---|
| Theoretical classes: | |
| Practical classes: | |
| Theoretical-Practical Classes | 30,00 |
| Tutorial Guidance: | 20,00 |

## 9. ECTS Credits

6,00

## 10. Scientific Area Coordinator

## 11. Regent

Prof. Doutor TIAGO ANDRÉ FREIRE DE ALMEIDA

## 12. Assistants

## 13. Teaching Language

Portuguese

## 14. General Objectives

To continue the contents developed in anatomophysiology in the acquisition of technical and scientific competences on the knowledge of the structure and function of the body and its parts. In this curricular unit, the student should know the systems of integration, control, regulation and maintenance of homeostasis.

## 15. Specific Objectives

1. Identify and locate the anatomical structures involved in the integration, regulation and maintenance of internal organic life;
2. Understand the functioning of the units that structure the internal organic life;
3. Know the functional organization of each system and between the different systems in response to changes in the organic environment and the contribution to homeostasis;
4. Integrate knowledge of anatomophysiology and apply it in the analysis of practical situations in the sport

## 16. Skills to be acquired



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- dentify the main anatomical and physiological systems and their respective organs, recognizing their functionality and interdependence;
- Describe the organization and the control and integration mechanisms of the central and autonomic nervous systems;
- Analyze the mechanisms of regulation and homeostasis in the context of physical exercise;
- Apply knowledge of anatomophysiology to interpret physiological responses to exercise and recovery processes.

## 17. Teaching Methodology

The procedure will be similar to that presented in the curricular unit of anatomy and physiology. Expository and interactive classes will be held during the extensive curriculum organization by content. The intensive analysis will resort to the practical - pedagogical exercises carried out in the classroom defined through the support literature. In this way, it is intended to overcome critical aspects of a curriculum centered on contents, aiming at the acquisition of fundamental skills and criti

## 18. Course Unit Program



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1. Nervous System
1.1. General organization of the nervous system: CNS and PNS, somatic and autonomic divisions;
1.2. Motor control: ascending and descending pathways; role of the spinal cord;
1.3. Brain and movement: motor cortex, cerebellum, and brainstem;
1.4. Proprioception and reflexes in the context of physical activity;
1.5. Sensorimotor integration during exercise;
1.6. Nervous system and neuromuscular fatigue;
1.7. Role of the limbic system in motivation, behavior, and response to exercise.

2. Endocrine System
2.1. Basic concepts and mechanisms of hormonal action;
2.2. Hypothalamic-pituitary integration;
2.3. Hormones related to exercise;
2.4. Acute and chronic endocrine responses to physical exercise;
2.5. Role of hormones in recovery and energy metabolism.

3. Cardiovascular System
3.1. Functional anatomy of the heart and blood vessels; Pulmonary and systemic circulation ? pathways and functions;
3.2. Anatomy of the heart, cardiac cycle, and cardiac output;
3.3. Heart rate and blood pressure;
3.4. Cardiovascular adaptations to physical exercise;
3.5. Regulation of blood flow during exertion.

4. Respiratory System
4.1. Functional anatomy of the respiratory system;
4.2. Pulmonary ventilation: volumes and capacities;
4.3. Gas exchange and oxygen and carbon dioxide transport;
4.4. Regulation of breathing during physical exercise;
4.5. Ventilatory adaptations to training.

5. Digestive System
5.1. Structure and functions of the main organs of the digestive tract;
5.2. Digestion and absorption of macronutrients;
5.3. Role of the liver and pancreas in metabolic regulation;
5.4. Relationship between digestion, absorption, and sports nutrition;
5.5. Impact of diet on performance and recovery.

6. Urinary System
6.1. Anatomy and main functions of the urinary system;
6.2. Internal structure of the kidney and nephron function;
6.3. Regulation of water and electrolyte balance;
6.4. Role of kidney function in physical exercise.



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## 19. Assessment Methods

Follows the RGAC currently in force at Univ. Lusíada - Lisboa.

## 20. Didactic Resources

The work will be developed using specialized bibliography, three-dimensional videograms, anatomical models, multimedia projection (e.g., PowerPoint), interactive study support materials, and the Moodle platform, where complementary content will be made available.

## 21. Sustainability Objectives

SDG 3 - Good Health and Well-being: through the promotion of knowledge about the functioning of the human body and its relationship with well-being and physical exercise;
SDG 4 - Quality Education: through the acquisition of scientific knowledge applied to sport and the development of competencies in functional anatomophysiology;
SDG 13 - Climate Action: by encouraging healthy lifestyles and greater awareness of the environmental impact of human practices on health and physical activity.

## 22. Keywords

Anatomy
Physiology
Systems
Organism
Body



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## 23. Main Bibliography

Author(s): Silva, P. A., Espanha, M, Pascoal, A. G., Rasoilo, J, & Correia, P. P.
Title: Sistemas Orgânicos Internos: Anatmofisiologia do sistema nervoso autónomo, sistema endócrino e apare
Edition: 2ª Year: 2023
Local: Cruz Quebrada - Dafundo
Publisher: Edições FMH
ISBN Code:

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Author(s): Pascoal, A. G., Espanha, M., Correia, P. P., Oliveira, R. & Freitas, S.
Title: Estudo do Movimento
Edition: 1ª Year: 2022
Local: Cruz Quebrada - Dafundo
Publisher: Edições FMH
ISBN Code:

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Author(s): Seeley, R. R., Stephens, T. D. & Tate, P.
Title: Anatomy and Physiology
Edition: 8ª Year: 2011
Local: New York
Publisher: McGraw-Hill International
ISBN Code:

## 24. Complementary Bibliography

Author(s): Pina, J. A. E
Title: Anatomia Humana dos Órgãos
Edition: 2ª Year: 2010
Local: Lisboa
Publisher: Lidel
ISBN Code:

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Author(s): R. Putz & R. Pabzt
Title: Sobotta - Atlas of Human Anatomy 3 vol.
Edition: 23ª Year: 2013
Local: Rio de Janeiro
Publisher: Guanabara Koogan.
ISBN Code:



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