COURSE DATA

DATA SUBJECT

Code: 44638
Name: Specialised aspects of cardiorespiratory function and its alterations
Cycle: Master's Degree
ECTS Credits: 6
Academic year: 2025-26

STUDY (S)

Degree	Center	Acad. year	Period
2220 - Master's Degree in Functional Recovery in Physiotherapy	Facultat de Fisioteràpia	1	Second quarter

SUBJECT-MATTER

Degree	Subject-matter	Character
2220 - Master's Degree in Functional Recovery in Physiotherapy	Specialised aspects of cardiorespiratory function and its alterations	ELECTIVES

COORDINATION

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SUMMARY

This subject introduces the main aspects of the cardiovascular and respiratory systems' anatomy and function, as well as the pathophysiology of major diseases and cardio-respiratory syndromes, in which functional recovery is based on scientific evidence and clinic experience. Moreover, it includes the most relevant aspects of cardiorespiratory exploration related to functional recovery in cardiorespiratory pathology. The student to be able to properly interpret the most commonly used diagnostic tests in the cardiorespiratory field, from a physiotherapeutic point of view.

PREVIOUS KNOWLEDGE

RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE

There are no specified enrollment restrictions with other subjects of the curriculum.

OTHER REQUIREMENTS

COMPETENCES / LEARNING OUTCOMES

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Be able to correctly apply the various evidence-based methodologies available in the treatment of the pathologies and injuries in question

Develop the ability to prepare and deliver both oral and written reports on the functional status of patients

Differentiate specifically the affected structure in a diagnostic image and its implications for functional recovery.

Identify and Analyze Risk Factors, Etiology, and Characteristics of Common Pathologies and Injuries in Clinical Settings

Students should be able to integrate knowledge and address the complexity of making informed judgments based on incomplete or limited information, including reflections on the social and ethical responsibilities associated with the application of their knowledge and judgments.

Students should demonstrate self-directed learning skills for continued academic growth.

Students should possess and understand foundational knowledge that enables original thinking and research in the field.

To delve deeper into the pathophysiology of the most common injuries and diseases.

DESCRIPTION OF CONTENTS

1. Physiological fundamentals as the basis for functional recovery in cardiorespiratory diseases.

1.1. Integration of the respiratory, cardiovascular and systemic metabolism.
1.2. Pathophysiology of major cardio-respiratory diseases and syndromes.

2. Evaluation and diagnosis of cardiac patient.

2.1. Assessment of the main signs and symptoms in cardio-respiratory diseases and syndromes.
2.2. Pulmonary and cardiac outcrowding.
2.3. Exploration of the ventilatory mechanics.
2.4. Assessment of the respiratory and peripheral muscles strength.
2.5. Respiratory functional exploration. Gasometry.
2.6. Basic electrocardiography and major alterations.
2.7. Diagnostic imaging in the cardiac and/or respiratory disorders: radiography, magnetic resonance imaging, medical ultrasonography, etc.
2.8. Assessment of exercise tolerance: heart and/or respiratory failure.

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Theory	24,00
Laboratory	12,00
Total hours	**36,00**

NON PRESENCIAL ACTIVITIES

Activity	Hours
Attendance at other activities	4,00
Individual or group project	0,00
Independent study and work	80,00
Preparation of lessons	24,00
Preparation for assessment activities	0,00
Resolution of case studies	6,00
Total hours	**114,00**

TEACHING METHODOLOGY

- Theoretical-practical classes.

- Individual work consisting of the resolution of a clinical case.

- Individual and/or group tutorials to resolve doubts about the content treated in the subject and the programmed individual activity.

- Autonomous work by the student.

EVALUATION

Evaluation system	Percentage of qualifying
Development of a clinical case proposed by the teacher.	**15%**

Student participation and attendance in the classroom	**30%**
Final written test to assess both the conceptual and procedural contents related to functional recovery in the cardiorespiratory patient.	**55%**

The final grade of the subject will be the weighted sum of the marks obtained in each evaluation test, as long as the student has obtained at least 50% of the maximum mark in each of the tests: individual activity (clinical case), participation-attendance in class and written final test.

Class attendance is compulsory and is part of the course evaluation. In this sense, a minimum attendance of 80% of the course hours is required to receive the highest grade in this evaluation category. Likewise, except for reasons of force majeure accredited to the master's degree management, a minimum attendance of 50% of the course hours is required to pass this part of the evaluation. Because face-to-face classes are non-recoverable, failing to attend 50% of the hours of the subject means it is impossible to pass the subject in either of the two calls.

REFERENCES

- Barret KE, Barman SM, Brooks HL, Yu JXJ. *Ganong fisiología médica*. 26ª ed. Nueva York: McGraw Hill Lange; 2008. ISBN: 9780071418859.
- Gavotto A, Mura T, Rhodes J, Yin SM, Hager A, Hock J, et al. Reference values of aerobic fitness in the contemporary paediatric population. *Eur J Prev Cardiol [Internet]*. 2023 Feb 21;33:1–10. doi: 10.1093/eurjpc/zwad054
- Herring W. *Radiología básica*. Aspectos fundamentales. 2ª ed. Elsevier; 2016. ISBN: 9788491131473.
- Jiménez Tobón G, et al. *Principios básicos de patología para fisioterapia. Volumen II.* Bogotá: Editorial Universidad del Rosario; 2022. ISBN: 9789588749325.
- Le Neindre A, Mongodi S, Philippart F, Bouhemad B. Thoracic ultrasound: potential new tool for physiotherapists in respiratory management. A narrative review. *J Crit Care*. 2016 Feb;31(1): 101–9. doi: 10.1016/j.jcrc.2015.10.014.
- López Chicharro J, Fernández Vaquero A. *Fisiología del ejercicio*. 4ª ed. Madrid: Editorial Médica Panamericana; 2022. ISBN: 9788491107491.
- Pastrana Delgado J. *Fisiopatología y patología general básicas para ciencias de la salud.* 2ª ed. Barcelona: Elsevier; 2023. ISBN: 9788491132791.
- Porcel JM. Pleural ultrasound for clinicians. *Rev Clin Esp (Barc).* 2016 Nov;216(8):427–35. English, Spanish. doi: 10.1016/j.rce.2016.05.009.
- Seco Calvo J, et al. *Diagnóstico por la imagen para fisioterapeutas*. Madrid: Editorial Médica Panamericana; 2025. ISBN: 9788491190178.
- Sietsema KE, Sue DY, Stringer WW, Ward S. *Wasserman y Whipp's Principles of exercise testing*

and interpretation: including pathophysiology and clinical applications. 6ª ed. Philadelphia: Editorial LWW; 2020. ISBN: 9781496391096.

- Strayer DS, editor. *Rubin y Strayer patología: fundamentos clinicopatológicos en medicina*. 7ª ed. Barcelona: Wolters Kluwer; 2017. ISBN: 9788491132715.

Likewise, the books, scientific articles and readings of interest recommended for the preparation of the contents addressed in each topic will be specified at the end of each class.