

1. OVERVIEW

Subject area	MEDICAL PATHOLOGY AND PHARMACOLOGY II
Degree	Bachelor's Degree in Physiotherapy
School/Faculty	Physical Activity and Sports Science & Physiotherapy
Year	Second
ECTS	6 ECTS
Type	Compulsory
Language(s)	English
Delivery Mode	On campus
Semester	Second semester
Year	2024/2025
Coordinating professors	Miguel Sebastian Pedromingo Kus
Teacher	Isabel Mínguez Esteban

2. INTRODUCTION

Medical Pathology and Pharmacology II is a subject area taught in the second semester of the second year of the Bachelor's Degree in Physiotherapy and the Double Degree in Physiotherapy & Physical Activity and Sports Science. It is worth 6 ECTS credits and is a compulsory subject area within the degree.

Taking into account the educational profile that the student is expected to achieve, it provides basic and specific education on the main diseases and how they are treated. While helping students to acquire the theoretical knowledge and skills needed to make a correct clinical diagnosis, it also helps them to create treatment plans and introduces them to pre-clinical therapeutic practice before starting to work with patients.

The subject area follows a chronological order to allow for the progressive acquisition of increasingly complex knowledge, as well as the acquisition of the skills they will be using in traditional and advanced simulation. The syllabus for *Medical Pathology and Pharmacology II* clearly defines the general and specific skills needed for the different levels of learning within the subject matter. The subject area is taught in Spanish and French, given the clear international character of Universidad Europea de Madrid, providing students with sufficient tools to achieve a level of knowledge that will allow them to carry out their work internationally.

The ECTS credits for this subject area include lectures, case studies, problem-based learning, advanced simulation environments, pre-clinical practicals in the traditional simulation lab, portfolios, seminars, supervised work, tutorials and time spent working independently.

This will allow the future graduate to acquire all the knowledge and skills needed to give a proper diagnosis, carry out proper prevention measures, create treatment plans and be introduced to therapy for patients in order to ultimately apply it outside of the preclinical environment.

3. SKILLS AND LEARNING OUTCOMES

Basic skills (CB, by the acronym in Spanish):

- CB1: Students have shown their knowledge and understanding of a study area that builds on general secondary school education, and are usually at the level where, with the support of more advanced textbooks, they may also demonstrate awareness of the latest developments in their field of study.
- CB2: Students know how to apply their knowledge to their work or vocation professionally and have the skills that are usually demonstrated by forming and defending opinions and solving problems within their study area.
- CB3: Students have the ability to gather and interpret relevant data (normally within their area of study) to form opinions which include reflecting on relevant social, scientific or ethical matters.
- CB4: Students can convey information, ideas, problems and solutions to both specialist and non-specialist audiences.
- CB5: Students have developed the necessary learning skills to undertake further studies with a high degree of independence.

Cross-curricular skills (CT, by the acronym in Spanish):

- CT1: Decision making.
- CT3: Organisational and planning skills.
- CT9: Commitment to ethics.
- CT18: Creativity.
- CT20: Initiative and entrepreneurial spirit.

Specific skills (CE, by the acronym in Spanish):

- CE120: Learn about and understand the pathophysiological mechanism behind a variety of diseases, developing the ability to link different processes to each other.
- CE121: Identify diseases of the different organs and systems, especially those most closely related to the practice of physiotherapy.
- CE122: At the end of this subject area, the student should know the terminology needed to communicate with other members of healthcare staff, as well as to understand the different documents that form part of a medical record.
- CE123: Learn to holistically observe patients, knowing how to detect warning signs that may require a referral to other health professionals.
- CE124: Study the specific characteristics of disease in elderly patients.
- CE125: Knowledge of the general foundations of pharmacology.
- CE126: Identify the drug class for the most commonly used treatments in physiotherapy.

Learning outcomes (RA, by the acronym in Spanish):

- RA1: Understanding of the key concepts related to medical pathology.
- RA2: Understanding of the core aspects of pharmacology.
- RA3: Ability to use theoretical knowledge for resolving practical case studies.
- RA4: Ability to recognise important information, find and correlate relevant data related to the core aspects of the subject matter.

The following table shows how the skills developed in the subject area relate to the intended learning outcomes:

Skills	Learning outcomes
CB1, CB2, CB3, CB5 CT3, CE122, CE130, CE131, CE132, CE133, CE134, CE135, CE136	RA1: Understanding of the key concepts related to medical pathology.
CB2, CB3, CB5 CT3	RA2: Understanding of the core aspects of pharmacology.
CE122, CE131, CE131, CE132, CE133, CE134, CE135	RA3: Ability to use theoretical knowledge for resolving practical case studies.
CB4, CT3, CT9, CT10, CT18	RA4: Ability to recognise important information, find and correlate relevant data related to the core aspects of the subject matter.
CB1, CB2, CB3, CB4, CB5 CT3, CT9, CT17, CT18, CT20, CE122, CE135, CE136	

4. CONTENTS

The contents are divided into four modules.

CARDIOVASCULAR DISEASES AND PHARMACOLOGY:

1. Introduction to the cardiovascular system. Medical history
2. Additional cardiac tests
3. Cardiovascular risk factors
4. Atherosclerosis and ischaemic heart disease
5. Heart failure
6. Valvular heart disease
7. Arrhythmias
8. Other cardiovascular diseases

DISEASES OF THE MUSCULOSKELETAL SYSTEM AND PHARMACOLOGY:

9. Introduction to Rheumatology
10. Rheumatic diseases. Arthropathy
11. Arthritis
12. Arthrosis
13. Bone disease
14. Muscle conditions
15. Pharmacology of rheumatic diseases

DISEASES OF THE NERVOUS SYSTEM AND PHARMACOLOGY:

16. Introduction. Anatomy and Physiology
17. Neurological examination
18. Additional tests
19. Movement disorders
20. Sensory impairment and spinal disorders
21. Coordination, balance and gait disorders

22. Disorders of higher functions
23. Multiple sclerosis
24. Cerebrovascular disease
25. Headaches. Traumatic brain injury
26. Neurological disorders in children

5. TEACHING-LEARNING METHODS

The types of teaching-learning methods are as follows:

- Lecture.
- Case studies.
- Collaborative learning.
- Problem-based learning.

6. LEARNING ACTIVITIES

The types of learning activities, plus the amount of time spent on each activity, are as follows:

On campus:

Learning activity	Number of hours
Lectures	30
Online seminars	20
Practical case studies	25
Independent working	50
Classroom practicals	20
Tutorials	5
TOTAL	150

7. EVALUATION

The evaluation systems, plus their weighting in the final grade for the subject area, are as follows:

Knowledge tests: 60%
Learning portfolio 40%

On campus:

Evaluation System	Weight
Learning Folder	40%
Knowledge Tests	60%

On the Virtual Campus, when you open the subject area, you can see all the details of your assessable tasks and the deadlines and assessment procedures for each task.

7.1. Ordinary call

To pass the subject area, you should be aware that the assessment methods will include assessment of knowledge, skills, abilities and attitudes.

To pass the subject area in the ordinary exam period, you must attend at least 50% of the classes taught (both on-campus and online) and actively participate in the theory classes.

To pass the subject area in the ordinary exam period, you must achieve a final grade of at least 5.0 out of 10.0 in both assessed sections of the subject area: theory block vs practical block.

- **Theory block (60%):** consists of two partial exams.
 - A first partial exam which will be 30% of the grade for this block.
 - A second partial exam will be 70% of the grade for this block.

The first partial exam will cover the part of the subject area taught up to that point, and the second exam will assess the whole subject area.

The average grade of these two exams must be equal to or higher than 5 to pass this block.

- **Practical block / Learning activities (40%):** There will be 3 learning activities plus simulation in a simulated hospital.
Each of these represents 10% of the grade for this block.
The average grade of all these training activities must be equal to or higher than 5 to pass this block.

Content of the first partial objective test (30% of the final grade for this block) and second partial (70% of the final grade for this block):

- TEST QUESTIONS (multiple choice) + SHORT ESSAY QUESTIONS
- ASSESSMENT CRITERIA of the objective tests:

The exam is formally **divided into 2 sections of equal value (10 points)**:

- First section with a **multiple-choice test**
 - Multiple-choice questions (4 options) with only one correct, valid answer.
 - Method of scoring the test:
 - 1 correct answer is worth 1 point
 - 1 incorrect answer subtracts 1/3 point.
 - 1 blank answer does not affect the points.
- Second section with short essay questions based on clinical cases or open questions.
- Duration of the knowledge tests: the duration of the exam will be announced via the virtual campus prior to the exam.

7.2. Extraordinary call

To pass the subject area in the extraordinary exam period (resits), students will need a final grade higher than or equal to 5.0 out of 10.0 for the subject area, according to the same criteria as in the ordinary exam period.

For students who pass only one of the blocks in the ordinary exam period, the grade for the block passed will remain valid, and they will only need to resit the block they have not passed.

IN CASE OF EXCEPTIONAL CIRCUMSTANCES, AS OCCURRED DURING THE COVID 19 PANDEMIC, THE ASSESSMENT METHOD WILL BE CHANGED. Students will be informed of any changes in due time via the appropriate channels.

8. SCHEDULE

The timeline with submission dates of assessable tasks for the subject area is indicated in this section:

Week	Contents	Learning activities/assessable tasks	Weighting of assessable task
Week 1	MP 2 Introduction / Topic 1 Introduction to the CV system. Medical	Lecture	
	Topic 2 Additional cardiac tests		
Week 2	Topic 3 Cardiovascular risk factors	Lecture	
	Topic 4 Atherosclerosis and Ischaemic Heart Disease		
Week 3	Topic 5 Heart failure SIMULATED HOSPITAL (date to be confirmed)	Lecture	
Week 4	Topic 6 Valvular heart disease	Lecture	
	Topic 7 Arrhythmias		
Week 5	Topic 8 Other respiratory diseases Topic 9 Introduction to Rheumatology	Lecture	
Week 6	Topic 10 Rheumatic diseases. Arthropathy	Lecture	
	Topic 11 Arrhythmias		
Week 7	Topic 12 Arthrosis	Lecture	
	Topic 13 Bone disease		
Week 8	First objective test	Assessment test	
Week 9	Topic 14 Muscle disease	Lecture	
	Topic 15 Pharmacology of rheumatic diseases		
Week 10	Topic 16 Introduction. Neurological Anatomy and Physiology.	Lecture	
	Topic 17 Neurological examination.		
Week 11	Topic 18 Additional tests	Lecture	
	Topic 19 Movement disorders		
Week 12	Topic 20 Sensory impairment and spinal disorders	Lecture	
	Topic 21 Coordination, balance and gait disorders		
Week 13	COMPLEX SIMULATED HOSPITAL (date to be confirmed)	Lecture	
Week 14	Topic 22 Disorders of higher functions Topic 23 Multiple sclerosis	Lecture	
Week 15	Topic 24 Cerebrovascular disease	Lecture	
Week 16	Topic 25 Headaches. Head trauma.	Lecture Assessment test	
	Topic 26 Neurological disorders in children		
NEUROLOGICAL EXAMINATION (on-campus examination)			

Wee k 17	SECOND OBJECTIVE TEST	Assessment test	
TO TAL			

The timeline may be subject to modifications for logistical reasons. Students will be informed of any changes in due time via the appropriate channels.

9. BIBLIOGRAPHY

The works of reference for the follow-up of this subject area are:

- JOSÉ LUIS PÉREZ ARELLANO. Manual de Patología General – Sisinio de Castro. 7ª edición. Ed Elsevier España SL, Barcelona. 2013.
- F. JAVIER LASO GUZMAN. Introducción a la medicina clínica: Fisiopatología y Semiología. Ed Elsevier 2011.

The recommended bibliography on which the lecture topics are based is listed below:

1. TEXTS

J. GARCIA-CONDE, Patología General. Semiología Clínica y Fisiopatología, Madrid, McGraw-Hill-Interamericana de España, 2ª edición 2003.

FLÓREZ J, ARMIJO JA, MEDIAVILLA A. Farmacología humana. Masson-Salvat, 2008.

HARRISON. Principios de Medicina Interna. McGraw-Hill-Interamericana de España, 2009.

FARRERAS, ROZMAN. Medicina Interna. Elsevier, 2008.

GOODMAN y GILMAN'S. Las bases farmacológicas de la terapéutica. McGraw-Hill-Interamericana, 2006.

Màrius Duran Hortolà, Concepció Mestres Miralles, María Rosa Nogues Llord. **Fundamentos de Farmacología para Fisioterapeutas**. Ed. Panamericana. 2017. ISBN 9788491101871.

Seco Calvo, J. Sistema respiratorio. Métodos, fisioterapia clínica y afecciones respiratorias para fisioterapeutas. Ed. Panamericana 2018. ISBN 9788491102649

2. CLINICAL PRACTICE GUIDELINES - Cross-disciplinary Documents.

CARDIOLOGY

- 2019ACC/AHA Guideline on the Primary Prevention of Cardiovascular Disease. Arnett et al. *Circulation*. 2019;000: e000–e000.
- Guía ESC/ESH 2018 sobre el diagnóstico y tratamiento de la hipertensión arterial. Grupo de Trabajo de la Sociedad Europea de Cardiología (ESC) y la European Society of Hypertension. *Rev Esp Cardiol*. 2019;72(2): 160.e1-e78.
- Measurement of Blood Pressure in Humans. Munter P et al. *Hypertension*. 2019;73: e35–e66.
- 2016 ESC/EAS Guidelines for the Management of Dyslipidaemias. Alberico L. et al. *European Heart Journal* (2016) 37, 2999–305

- Guía ESC 2018 sobre el diagnóstico y el tratamiento del síncope. Brignole M, et al. *Rev Esp Cardiol.* 2018;71(10): 837.e1-e92
- Guía de Práctica Clínica sobre Tratamiento de la Insuficiencia Cardíaca Crónica. Grupo de trabajo de la GPC sobre Tratamiento de la Insuficiencia Cardíaca Crónica. Ministerio de Sanidad, Servicios Sociales e Igualdad, 2016.
- 2016 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure. Ponikowski P. et al. *European Heart Journal* (2016) 37, 2129–2200.
- 2015ESC Guidelines for the management of acute coronary syndromes in patients presenting without persistent ST-segment elevation. Roffi M. et al. *European Heart Journal* (2016) 37, 267–315
- Guía ESC 2017 sobre el tratamiento del infarto agudo de miocardio en pacientes con elevación del segmento ST. Ibáñez B, et al. *Rev Esp Cardiol.* 2017;70(12): 1082.e1-e61
- Guía ESC 2017 sobre el diagnóstico y tratamiento de la enfermedad arterial periférica, desarrollada en colaboración con la European Society for Vascular Surgery (ESVS). Grupo de Trabajo para el Diagnóstico y Tratamiento de la Enfermedad Arterial Periférica de la Sociedad Europea de Cardiología (ESC) y la European Society for Vascular Surgery (ESVS), Aboyans V. et al. *Rev Esp Cardiol.* 2018;71(2): 111.e1-e69.
- Documento de Consenso de Expertos sobre bloqueadores de los receptores -adrenérgicos. Grupo de Trabajo sobre Bloqueadores Beta de la Sociedad Europea de Cardiología. *Rev Esp Cardiol.* 2005;58(1):65-90.
- Documento de Consenso de Expertos sobre el uso de inhibidores de la enzima de conversión de la angiotensina en la enfermedad cardiovascular. López-Sendón J, et al. *Rev Esp Cardiol* 2004;57(12):1213-32
- Documento de Consenso de Expertos sobre el uso de agentes antiplaquetarios Grupo de Trabajo sobre el uso de agentes antiplaquetarios en pacientes con enfermedad cardiovascular aterosclerótica de la Sociedad Europea de Cardiología. *Rev Esp Cardiol* 2004;57(10):963-80.

RHEUMATOLOGY

- Guía Clínica Enfermedades Autoinmunes Sistémicas SEMI–semFyc 2014. Ramos Casals M. et al.
- Anamnesis y exploración física en Reumatología. López Robledillo JC. *Pediatría Integral* 2017; XXI (3): 219.e1 – 219.e16
- Rotación del residente de Medicina Familiar y Comunitaria por Reumatología. Muñoz Jiménez A, Rubio Romero E. YOU & US, S.A. Madrid, 2016. ISBN: 978-84-945705-4-4.
- Documento de consenso de la Sociedad Española de Reumatología sobre la fibromialgia. Rivera j. et al. ISBN 84-8124-217-9
- Abordaje multimodal para el manejo del dolor agudo. Aréchiga-Ornelas G, Mille-Loera JE, Ramírez-Guerrero A. *Revista Mexicana de Anestesiología.* Volumen 33, Suplemento 1, abril-junio 2010.

NEUROLOGY

- Guía oficial de práctica clínica en la Enfermedad de Parkinson. Arbelo González JM, et al. Sociedad Española de Neurología. Luzán 5 SA, Madrid, 2016. ISBN: 978-84-7989-866-3.
- Guía de práctica clínica sobre la atención a las personas con esclerosis múltiple. Agència d'Informació, Avaluació i Qualitat en Salut. Barcelona 2012. B. 32491-2012.
- Guía de Buena Práctica Clínica en Alzheimer y otras demencias. Rodríguez Vicente JM, et al. IMC SA, Madrid. ISBN: 978-84-7989-866-3.
- Guía de práctica clínica sobre prevención primaria y secundaria del ictus. Rigau Comas D. et al. *Med Clin (Barc).* 2009;133(19):754–762
- Guía para el tratamiento del infarto cerebral agudo. Alonso de Leciana M. et al. *Neurología.* 2014;29(2):102–122
- Guía oficial para el diagnóstico y tratamiento del ictus. Díez-Tejedor E. et al. Prous Science, Barcelona 2004. ISBN 84-8124-217-9

10. DIVERSITY AWARENESS UNIT

From the Diversity Awareness Unit (ODI) we offer support to our students throughout their university life to help them achieve their academic goals. Other pillars of our actions are the inclusion of students with specific educational support needs, universal accessibility on the different campuses of the university and the equalization of opportunities.

This Unit offers students:

1. Accompaniment and monitoring by providing personalized advice and plans to students who need to improve their academic performance.
2. In terms of attention to diversity, non-significant curricular adjustments are made, that is, at the level of methodology and evaluation, in those students with specific educational support needs, thereby pursuing equity of opportunities for all students.
3. We offer students different extracurricular training resources to develop various skills that will enrich their personal and professional development.
4. Vocational guidance by providing tools and advice to students with vocational doubts or who believe that they have made a mistake in choosing a degree.

Students who need educational support can write to us at:

orientacioneducativa@universidadeuropea.es

11. STUDENT SATISFACTION SURVEYS

Your opinion matters!

Universidad Europea encourages you to complete our satisfaction surveys to identify strengths and areas for improvement for staff, the degree and the learning process.

These surveys will be available in the surveys area of your virtual campus or by email.

Your opinion is essential to improve the quality of the degree.

Many thanks for taking part.