



1. General information

Course: MUSCULOSKELETAL ANATOMY**Type:** BASIC**Degree:** 333 - UNDERGRADUATE DEGREE PROGRAMME IN PHYSIOTHERAPY**Center:** 109 - FACULTAD DE FISIOTERAPIA Y ENFERMERÍA**Year:** 1**Main language:** Spanish**Use of additional languages:****Web site:****Code:** 17303**ECTS credits:** 6**Academic year:** 2022-23**Group(s):** 40**Duration:** First semester**Second language:****English Friendly:** Y**Bilingual:** N**Lecturer:** HECTOR BELTRÁN ALACREU - Group(s): 40

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Lecturer: DANIEL TORRES MARTIN - Group(s): 40

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2. Pre-Requisites

Not established

3. Justification in the curriculum, relation to other subjects and to the profession

Justification: Includes the study of the bones, joints and muscular structures of the human body.

This subject is a cornerstone for the study and professional practice of physical therapy. Since the locomotor system is the system on which physiotherapy works.

Relationship with other Subjects: Morphophysiology I, Morphophysiology II, Psychology, Biochemistry, Biophysics, Biomechanics, Kinesitherapy, Clinical Assessment, General Pathology, Specific Methods I - IV, Physiotherapy in Specialties I-VI, Introduction to Clinical Practices, and Practicum I, II and III.

Relationship with the Profession: The acquisition of a solid knowledge of the Locomotor System is essential to practice the profession with the scientific foundation and rigour that is required in today's society. Their knowledge will allow evaluations to be carried out and to correctly and scientifically support different general and specific physiotherapeutic techniques. Furthermore, this subject contributes to the acquisition of oral communication skills of a professional and scientific nature, as well as comprehensive reading, analysis and synthesis of documentation skills.

4. Degree competences achieved in this course

Course competences

Code	Description
CB1	Prove that they have acquired and understood knowledge in a subject area that derives from general secondary education and is appropriate to a level based on advanced course books, and includes updated and cutting-edge aspects of their field of knowledge.
CB2	Apply their knowledge to their job or vocation in a professional manner and show that they have the competences to construct and justify arguments and solve problems within their subject area.
CB3	Be able to gather and process relevant information (usually within their subject area) to give opinions, including reflections on relevant social, scientific or ethical issues.
CB4	Transmit information, ideas, problems and solutions for both specialist and non-specialist audiences.
CB5	Have developed the necessary learning abilities to carry on studying autonomously
E01	Students must be capable of systematically identifying and describing anatomic structures in order to apply them in Physiotherapy performance.
E02	Students must be capable of describing and explaining the basic mechanisms underlying the functioning of each system and organ, as well as their contribution to maintaining homeostasis.
E03	Students must be capable of inferring what will happen upon alteration of any structure of each system or its function.
E22	Students must be capable of identifying the organizational levels of every anatomic structure and relate them to their biological and biomechanical behavior, adapting it to the different circumstances and life stages.
G01	Students must show their ability to make educated decisions and solve problems based on available knowledge and information within their field of study.
G02	Students must prove their organizational, planning, and time management skills for the teaching-learning process.

G03	Students must demonstrate their skills in terms of analyzing, summarizing both verbally and in writing, as well as producing and defending arguments.
G04	Students must show their skills in terms of verbal and written communication in Spanish.
G05	Students must show their ability to manage information properly.
G06	Students must show their capabilities and management of ITCs in their field of study.
G08	Students must show skills and aptitude for teamwork.
G11	Students must show motivation for the continuous quality improvement of both personal and professional aspects.
G18	Students must exhibit interest and responsibility in the learning process throughout life.
G19	Students must show respect, appreciation, and sensitivity towards the work of others.
G22	Students must develop the necessary learning skills to undertake further studies with autonomy.
G23	Students must have acquired knowledge and understanding of Health Sciences, based on advanced textbooks and cutting-edge knowledge in their field of study.
G26	Students must show respect for Human Rights, fulfilling principles of equality between genders, non-discrimination, and universal accessibility for people with disabilities.

5. Objectives or Learning Outcomes

Course learning outcomes

Description

To systematically describe, verbally and in writing, the most relevant anatomic accidents of each bone of the trunk and limbs, using scientific language and the aid of ITCs.

To identify, locate, and place in their anatomic position the different bones of the trunk and limbs, in both anatomic models and peers.

To select, analyze, and summarize the basic information about the anatomy of the locomotive system.

To deduce and analyze the function of each muscle based on their location and layout.

To systematically describe, verbally and in writing, the most relevant joints of the trunk and limbs, using scientific language and the aid of ITCs.

To systematically describe, verbally and in writing, the muscles of the trunk and limbs, using scientific language and the aid of ITCs.

To locate by palpation the most relevant bone accidents of the trunk and limbs.

To identify and locate by palpation the different joints of the trunk and limbs, in both anatomic models and peers.

To identify and locate the muscles of the trunk and limbs in anatomic models.

6. Units / Contents

Unit 1: GENERAL ANATOMY OF THE LOCOMOTOR SYSTEM

Unit 1.1 General Osteology

Unit 1.2 General Arthrology

Unit 1.3 General Myology

Unit 1.4 Practice 1: General Osteology

Unit 1.5 Practice 2: General Arthrology

Unit 1.6 Practice 3: General Myology

Unit 2: THE TRUNK

Unit 2.1 The Spine: general and regional study

Unit 2.2 Joints and ligaments of the spine

Unit 2.3 The thorax: osseous and articular structures

Unit 2.4 The pelvis: osseous and articular structures

Unit 2.5 Muscles of the neck

Unit 2.6 Muscles of the spine

Unit 2.7 Muscles of the abdominal wall

Unit 2.8 Muscles of the pelvic floor

Unit 2.9 Practice 4: Study of the bones of the spine

Unit 2.10 Practice 5: Study of the bones of the thorax

Unit 2.11 Practice 6: Study of the bones of the pelvis

Unit 2.12 Muscular annex of the trunk seminar: fasciae, bursae and synovial sheaths

Unit 3: THE UPPER LIMB

Unit 3.1 The shoulder girdle: osseous and articular structures

Unit 3.2 Osseous structure of the upper limb

Unit 3.3 Joints of the upper limb

Unit 3.4 Muscles connecting the upper limb to the spine

Unit 3.5 Muscles connecting the upper limb to the rib cage

Unit 3.6 Muscles of the scapula

Unit 3.7 Muscles of the arm

Unit 3.8 Muscles of the forearm

Unit 3.9 Intrinsic muscles of the hand

Unit 3.10 Practice 7: Study of the bones of the upper limb

Unit 3.11 Practice 8: Study of the joints of the upper limb

Unit 3.12 Practice 9: Study of the muscles of the upper limb

Unit 3.13 Practice 10: Topographic surface and palpatory anatomy of the thorax and upper limb

Unit 3.14 Muscular annex of the upper limb seminar: fasciae, bursae and synovial sheaths

Unit 4: THE LOWER LIMB

Unit 4.1 Osseous structures of the lower limb

Unit 4.2 Joints of the lower limb

Unit 4.3 Muscles of the iliac region

Unit 4.4 Muscles of the gluteal region

Unit 4.5 Muscles of the thigh

- Unit 4.6** Muscles of the leg
Unit 4.7 Intrinsic muscles of the foot
Unit 4.8 Practice 11: Study of the bones of the lower limb
Unit 4.9 Practice 12: Study of the joints of the lower limb
Unit 4.10 Practice 13: Study of the muscles of the lower limb
Unit 4.11 Practice 14: Topographic surface and palpatory anatomy of the pelvis and lower limb
Unit 4.12 Muscular annex of the lower limb seminar: fasciae, bursae and synovial sheaths

Unit 5: THE HEAD

- Unit 5.1** Osseous structures of the skull
Unit 5.2 Joints of the skull
Unit 5.3 Study of the muscles of face and epicranium
Unit 5.4 Study of the masticatory muscles
Unit 5.5 Topographic surface and palpatory anatomy of the skull

ADDITIONAL COMMENTS, REMARKS

Practices 4 - 14 include both the location in the corresponding anatomical model and the palpatory localization of the main structures that can be located by palpation.

7. Activities, Units/Modules and Methodology

Training Activity	Methodology	Related Competences (only degrees before RD 822/2021)	ECTS	Hours	As	Com	Description
Class Attendance (theory) [ON-SITE]	Combination of methods	E01 E02 E03 E22 G01 G03 G04 G06 G11 G18 G19 G22 G26	0.8	20	Y	N	
Class Attendance (practical) [ON-SITE]	Practical or hands-on activities	E01 E02 E03 E22 G01 G02 G03 G04 G05 G06 G08 G11 G18 G19 G22 G23 G26	1.12	28	Y	N	
Workshops or seminars [ON-SITE]	Combination of methods	E01 E02 E03 E22 G01 G02 G03 G04 G05 G06 G08 G11 G18 G19 G22 G23 G26	0.24	6	Y	N	
Group tutoring sessions [ON-SITE]	Group tutoring sessions	G01 G02 G04 G05 G08 G11 G18 G19 G26	0.16	4	Y	N	
Final test [ON-SITE]	Assessment tests	CB1 CB2 CB3 CB4 CB5 E01 E02 E03 E22 G01 G02 G03 G04 G05 G06 G08 G11 G18 G19 G22 G23 G26	0.08	2	Y	Y	
Study and Exam Preparation [OFF-SITE]	Self-study	E01 E02 E03 E22 G01 G02 G03 G04 G05 G08 G18 G19 G22 G23 G26	3.2	80	Y	N	
Other off-site activity [OFF-SITE]	Combination of methods	E01 E02 E03 E22 G01 G02 G03 G05 G06 G11 G22 G23	0.4	10	Y	N	
Total:			6	150			
Total credits of in-class work: 2.4			Total class time hours: 60				
Total credits of out of class work: 3.6			Total hours of out of class work: 90				

As: Assessable training activity

Com: Training activity of compulsory overcoming (It will be essential to overcome both continuous and non-continuous assessment).

8. Evaluation criteria and Grading System

Evaluation System	Continuous assessment	Non-continuous evaluation*	Description
Theoretical exam	45.00%	45.00%	
Practical exam	35.00%	35.00%	
Oral presentations assessment	10.00%	10.00%	
Assessment of active participation	10.00%	10.00%	
Total:	100.00%	100.00%	

According to art. 4 of the UCLM Student Evaluation Regulations, it must be provided to students who cannot regularly attend face-to-face training activities the passing of the subject, having the right (art. 12.2) to be globally graded, in 2 annual calls per subject, an ordinary and an extraordinary one (evaluating 100% of the competences).

9. Assignments, course calendar and important dates

Not related to the syllabus/contents	
Hours	hours
Group tutoring sessions [PRESENCIAL][Group tutoring sessions]	4
Final test [PRESENCIAL][Assessment tests]	2
Other off-site activity [AUTÓNOMA][Combination of methods]	10

Unit 1 (de 5): GENERAL ANATOMY OF THE LOCOMOTOR SYSTEM	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Combination of methods]	5
Class Attendance (practical) [PRESENCIAL][Practical or hands-on activities]	4
Study and Exam Preparation [AUTÓNOMA][Self-study]	11
Group 40:	
Initial date: 05-09-2022	End date: 20-01-2023
Unit 2 (de 5): THE TRUNK	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Combination of methods]	8
Class Attendance (practical) [PRESENCIAL][Practical or hands-on activities]	3
Workshops or seminars [PRESENCIAL][Combination of methods]	2
Study and Exam Preparation [AUTÓNOMA][Self-study]	18
Group 40:	
Initial date: 23-09-2019	End date: 25-10-2019
Unit 3 (de 5): THE UPPER LIMB	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Combination of methods]	3
Class Attendance (practical) [PRESENCIAL][Practical or hands-on activities]	8
Workshops or seminars [PRESENCIAL][Combination of methods]	2
Study and Exam Preparation [AUTÓNOMA][Self-study]	18
Group 40:	
Initial date: 28-10-2019	End date: 15-11-2019
Unit 4 (de 5): THE LOWER LIMB	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Combination of methods]	2
Class Attendance (practical) [PRESENCIAL][Practical or hands-on activities]	10
Workshops or seminars [PRESENCIAL][Combination of methods]	2
Study and Exam Preparation [AUTÓNOMA][Self-study]	18
Group 40:	
Initial date: 18-11-2019	End date: 05-12-2019
Unit 5 (de 5): THE HEAD	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Combination of methods]	2
Class Attendance (practical) [PRESENCIAL][Practical or hands-on activities]	3
Study and Exam Preparation [AUTÓNOMA][Self-study]	15
Global activity	
Activities	hours
Class Attendance (theory) [PRESENCIAL][Combination of methods]	20
Class Attendance (practical) [PRESENCIAL][Practical or hands-on activities]	28
Workshops or seminars [PRESENCIAL][Combination of methods]	6
Final test [PRESENCIAL][Assessment tests]	2
Other off-site activity [AUTÓNOMA][Combination of methods]	10
Group tutoring sessions [PRESENCIAL][Group tutoring sessions]	4
Study and Exam Preparation [AUTÓNOMA][Self-study]	80
Total horas: 150	

10. Bibliography and Sources						
Author(s)	Title/Link	Publishing house	Citv	ISBN	Year	Description
Dauber, Wolfgang	Feneis nomenclatura anatómica ilustrada. 5ª edición	Masson		978-84-458-1642-4	2006	
Drake, Richard L.	Gray anatomía para estudiantes	Elsevier		978-84-9022-842-5	2015	
Netter, Frank Henry	Atlas de anatomía humana	Elsevier		978-84-9113-546-3	2019	
Platzer, W.	ATLAS DE ANATOMIA CON CORRELACION CLINICA, TOMO 1: APARATO LOCOMOTOR	Editorial Medica Panamericana S.A.		978-84-9835-473-7	2018	
ROUVIERE, H.	Anatomía humana : descriptiva, topográfica y funcional	Masson		84-311-0402-3 (O.C.)	2005	
Schünke, Michael	Prometheus: texto y atlas de Anatomía	Médica Panamericana		978-84-9835-224-5 (v	2013	
Serge Tixa	ATLAS DE ANATOMIA PALPATORIA, TOMO 1: CUELLO, TRONCO Y MIEMBRO SUPERIOR	Elsevier		9788445825808	2014	
Serge Tixa	ATLAS DE ANATOMIA PALPATORIA, TOMO 2: MIEMBRO INFERIOR	Elsevier		9788445825815	2014	
Testut, L.	Tratado de anatomía humana	Masson		978-84-4580-552-7	1996	
Paulsen, F	Sobotta: atlas de anatomía humana	Elsevier		978-84-8086-874-7	2012	
Standring, Susan	Gray's Anatomy. The Anatomical Basis of Clinical Practice. 41 Ed.	Elsevier		978-0-7020-5230-9	2016	

Muscolino, J	Manual de Palpación Ósea y Muscular con Puntos Gatillo, Patrones de Referencia y Estiramientos	Panamericana	978-84-9835-365-5	2017
Stanley Hoppenfeld	Exploración Física de la Columna Vertebral y las Extremidades		9789684260559	1979