1. BASIC DATA

Subject	ANATOMY II
Qualification	Degree in Physiotherapy
School/Faculty	FACULTY OF MEDICINE, HEALTH AND SPORTS SCIENCES
Course	1º
ECTS	3 ECTS (75 hours)
Character	MANDATORY
Language(s)	ENGLISH, FRENCH AND SPANISH
Modality	PRESENT
Semester	2ND SEMESTER
Academic year	24-25
Coordinating teacher	Jaime Almazan / Charles Cotteret

2. PRESENTATION

In line with one of the general objectives of the University, which is to train professionals, the knowledge of anatomy is essential to understand the language of health care. The anatomy of the locomotor system and nervous system is the basis on which the scientific knowledge of the physiotherapist is based. The knowledge and skills developed in this subject are necessary to know and understand other subjects that are taught in the curricular development of the degree and respond to the depth with which the contents related to the acquisition and development of basic professional skills must be addressed. The approach of the Anatomy of the musculoskeletal system from a multiple three-dimensional perspective, through the study of anatomical models and cadaveric models, new technologies such as virtual reality or three-dimensional anatomy platforms, as well as through imaging tests such as ultrasound or through palpation, offer the possibility of facilitating anatomical knowledge from a practical and multifaceted point of view.

3. LEARNING OUTCOMES

Knowledge:

- CON3. Identify the different structures of organs and systems of the human body, as well as their function.
- CON6. Know and understand the morphology, physiology, pathology and behavior of people, both healthy and sick, in the natural and social environment.
- CON7. Know and understand the sciences, models, techniques and instruments on which physiotherapy is based, articulated and developed.

- Recognize the morphology and anatomical bone, joint, muscle, nerve and vascular components of the head and trunk.

- Identify scientific articles related to descriptive anatomy.

- Transfer knowledge with other sciences related to the study of the anatomy of the locomotor system.

Competencies:

- COMP25. Use information and communication technologies for data search and analysis, research, communication, and learning.
- COMP27. Cooperate with others in the pursuit of a shared academic or professional goal, participating actively, empathetically, and exercising active listening and respect for all members.
- COMP30. Show ethical behaviors and social commitment in the performance of the activities of a profession, as well as sensitivity to inequality and diversity.

4. CONTENTS

The subject is organized into five learning units, which, in turn, are divided into topics:

THEMATIC BLOCK I: LOWER EXTREMITY (osteology, arthrology, myology, neuroanatomy, vascularization):

Topic 1. Shoulder girdle.

Clavicle. Scapula. Sternocostoclavicular joint. Acromioclavicular joint.

Osteology of the upper limb.

Humerus, ulna and radius. Bones of the hand.

Articular complex of the shoulder.

General. Articular surfaces. Means of union. Functional anatomy.

Topic 4. Elbow joint.

Humero-ulnar joint. Humeroradial joint. Proximal radioulnar joint

Theme 5. Joints of the carpus and hand.

Wrist joint. Carpo-metacarpal joints. Metacarpophalangeal joints. Interphalangeal joints.

Topic 6. Shoulder muscles.

General and classification. Anterior group. Lateral group. Medial group. Posterior group

Topic 7. Muscles of the arm.

Generalities and classification. Ventral muscles: M. brachialis and M. biceps. Dorsal muscles: M. triceps and M. anconeus.

Muscles of the forearm.

Generalities and classification. Ventral group. Lateral group. Posterior group. Fibrous and synovial sheaths.

Short muscles of the hand and fingers.

General and classification. Middle group. Tenar group. Hypotenar group..Fasciae of the hand.

Vascularization of the upper limb.

Axillary, humeral, ulnar and radial arteries. Veins and lymphatics of the upper limb.

Innervation of the upper extremity.

Brachial plexus, distal divisions, neuroanatomical pathways, neuromechanical conflict points.

PRACTICE:

I. Palpatory Anatomy of the shoulder and arm

a. Bone reliefs of the shoulder

b. Myology of the shoulder girdle, anterior and posterior compartment of the arm.

c. Neural and vascular anatomy of the shoulder, anterior and posterior arm.

II. Palpatory Anatomy of the Elbow and Forearm

a. Bone reliefs of the elbow

b. Myology of the anterior aspect of the forearm

c. Myology of the posterolateral compartment of the forearm

d. Neural and vascular anatomy of the elbow

III. Palpatory anatomy of wrist and hand

a. Bone reliefs of the wrist and hand

b. Myology of the anterior compartment of the hand (palm)

c. Neural and vascular anatomy of the hand

5. METHODOLOGIES D OCENTS

The following are the types of teaching-learning methodologies to be applied:

- Master class.
- Case method
- Cooperative learning
- Workshop-based learning
- Simulated environments

6. TRAINING ACTIVITIES

The types of training activities to be carried out and the student's dedication in hours to each of them are identified below:

Presential modality:

Training activity	No. of hours	% of attendance	Total hours
Master Classes	12	100	12
Practical application seminars	3	100	3
Case analysis and resolution	8	50	4
Preparation of reports and writings	7	0	0
Activities in workshops and/or laboratories	6	100	6
Self-employment	28	0	0
Debates and colloquiums	4	100	4
Tutoring	6	100	6
On-site evaluation tests	1	100	1
TOTAL	**75**	**48**	**36**

Activity 1- Integration of theoretical knowledge.

- Master classes, debates and colloquiums.
- Exposure of the teacher in the classroom, with the aim of transmitting knowledge and activating cognitive processes in the student.
- Verification of the knowledge acquired on the syllabus developed in class.

Activity 2 (Scientific research)- Cooperative self-study Elaboration, delivery and discussion.

- The students, in groups, will develop the knowledge to work on the competencies based on the introduction to the search of scientific documents in OPEN ACCESS through the use of scientific databases.
- Elaboration, delivery and discussion in the classroom (scientific article search activity, reading in English and selection of information, as well as cadaveric descriptive anatomical images).

Activity 3- Practical application seminars and activities in workshops and/or laboratories: Laboratory practices for practical workshop skills based on clinical stations and seminars. Intermediate and final objective practical test.

- Physiotherapy laboratory practice for the palpation of anatomical structures. Acquisition through practical sessions of manual dexterity, sensitivity by planes and knowledge of topographic anatomy for the identification of bone, muscle, tendon, capsulo-ligamentous and vasculonervous bundles.
- Structure and function laboratory practices for the identification of anatomical structures through anatomical models, imaging models of complementary tests, live ultrasound, cadaveric models and virtual reality systems and three-dimensional anatomy.
- Participation of students in an integrated session of clinical seminars with the rest of the basic subjects of the first course, clinical pathological interaction and other subjects of integration in the vertical. Clinical cases will be presented and solved jointly in class with the teacher with the aim of presenting different pathologies of the vertical and establish the inter and multidisciplinary management of the clinicopathological management.

7. EVALUATION

The following is a list of the evaluation systems, as well as their weight in the total grade of the course:

Presential modality:

Evaluation system	Weight % Weight
On-site evaluation tests	50
Application activities (Learning portfolio)	30
Practical knowledge test	20

In the Virtual Campus, when you access the course, you will be able to consult in detail the evaluation activities to be performed, as well as the due dates and evaluation procedures for each of them.

7.1. Ordinary call for applications

In order to pass the course in the ordinary call, the **continuous evaluation process** of the different training activities must be passed. The general evaluation scheme, divided by blocks, is as follows:

ASSESSABLE BLOCK	EVALUATION SYSTEMS	Weight (%)
1	Objective knowledge tests	50%
2	Application exercises: images and classroom activities	30%
3	Practical knowledge test	20%

It is essential that the **grade in evaluable blocks 1, 2 and 3 is equal or higher than 5** in each of them to pass the course. The student's final grade will be obtained from the weighting of the partial grades of each of the blocks, as indicated in the table and detailed below. In the case of not having passed the course, the grade in the minutes will always be that of the block with the lowest score. The grades published in the virtual campus will be **provisional** until the review of the test is carried out.

The evaluation methodology for the three evaluable blocks may be based on: test type questions, short questions, open questions with and without limitation of length, correspondence questions, questions with embedded answers, information synthesis tables, papers, oral presentations, etc.

In the event of a **modification of the** evaluation **date**, according to the application of the regulations for changing the date of evaluable tests, the format of such test may vary from that of the general call.

7.2. Extraordinary call for applications

In order to pass the course in the extraordinary call, all the requirements previously mentioned for the ordinary call must be fulfilled.

7.3. Description of Evaluable Activities:

For the correct evaluation of the competencies and learning outcomes contained in each of the training activities developed in the course, general evaluation rubrics have been designed for each type of activity. The grade of the evaluable block will be obtained by weighting based on the contents and competencies developed in each of the activities.

1. **Practical and integrated application knowledge tests" activities: Evaluable online tests (30%**)

The attendance to the practical activities, and the elaboration of the requested tasks is mandatory to pass this block. The evaluation of the activities will be done by demonstrating the knowledge and competences acquired during the activities. The participation and the delivery on time of the exercises is a necessary requirement to be evaluated in this section by means of individual questionnaires. The integrated activities will be adjusted according to the particularities of each one of them and assuring in all cases the adequate correlation between learning methodology and evaluation. The student will be informed of the specific rubric of each of the evaluable activities, reports and writings of the course in the virtual campus. At the

end of the two differentiated blocks of contents (Block I SUPERIOR EXTREMITY,) will be evaluated by means of the IDENTIFICATION OF ANATOMICAL STRUCTURES THROUGH AN IMAGE RECOGNITION TEST, with the images worked in practical laboratory sessions and self-learning.

The grade for the block "Practical and integrated application knowledge tests" will correspond to a weighted average of the VEVOX questionnaire activities carried out at the end of the practical sessions, complementary and integrated activities developed within the academic model (10%), the image recognition tests at the end of each block of contents (Block I, 20%). It will be necessary to obtain a minimum grade of 5 (weighted average) in all the activities of this block.

Detailed information on each of these activities will be provided through the virtual campus.

Evaluable online test:

The access to these activities will be done through the virtual campus of the course in the schedule indicated. In case of submitting the work after the deadline, the grade obtained will not be taken into account and the grade will be 0/10.The questions included in the tests are multiple-choice questions with 4 possible options and only one correct answer. Each correct answer is worth 1 point and each incorrect answer subtracts - 0,333 points from a correct question.

Each test will have a variable number of questions on the learning units detailed in the test description, and an after-the-fact grade adjustment will be made to establish a final grade out of 10.

At the end of the test, the student has the possibility to consult his results through the virtual campus, which allows him to obtain immediate feedback on his level of knowledge. The results obtained will be taken into account in the weighting of the final grade of the course.

2. **Activity "Objective tests of theoretical knowledge" (50%**)

As already indicated in section 7 of the learning guide, the objective tests can combine different types of questions (short questions, multiple choice, open questions, matching questions, text with gaps to fill in, schematic or oral presentations, etc.). Each of the questions will be assigned a value that will be detailed in the corresponding statement.

In general, and unless otherwise indicated in the specific rules of each test, the test questions will be worth 1 point each. There is only one correct answer among the 4 possible answers, so each wrong question will subtract -1/3 (0.333). In the event that the number of possible answers is 5, the penalty for error applied to each question will be -1/4 (0.25).

In the event that the test contains several different types of questions, the exam rules will indicate the value of the section of questions of each type for the total calculation of the grade obtained in the exam.

There will be a partial for the theoretical evaluation. The first partial will evaluate the contents of **BLOCK I (50%)**.

In order to pass the evaluation of this section, students must obtain a grade equal to or higher than 5/10 in the theoretical test. In the case of not obtaining this grade, the student will have to resort to the extraordinary exam in order to pass it.

3. **Activity "Practical evaluation test" (ANATOMICAL MODELS**)

- Practice **laboratory**

This rubric is general for the evaluable block of practices of the course. It will be adjusted according to the particularities of each one of them and ensuring in all cases the appropriate correlation between learning methodology and evaluation. The student will be informed of the specific rubric for each of the practices in the virtual campus.

For the correct development of the laboratory practices, it is mandatory:

- Respect the specific regulations of the PPE (gloves, goggles, pajamas, etc.).
- Submit the printed/online dossier of activities individually.
- Work autonomously prior to the practical session (reading previous study, answering questions and issues related to the practical activity, etc.).

If the above criteria are not met, in order to ensure the student's safety and proper learning, the student will not be allowed to attend the classroom session.

- **Final practical knowledge evaluation test (ANATOMIC MODELS AND PALPATORY ANATOMY) (20%**)

Structure/element recognition exam on **ANATOMICAL MODELS**. The student will be exposed to several anatomical models at the end of the semester and will be required to find and identify the bone, joint, muscle and nerve structures present on these models. The grade will be given out of 10 points depending on the number of structures requested to be correctly identified in a limited time. A practical test of recognition of anatomical structures on **ANATOMICAL MODELS (10%)** will be performed for the evaluation of knowledge of Blocks I (UPPER EXTREMITY) at the end of the semester.

Examination of recognition of anatomical structures/elements through **PALPATORY ANATOMY**. The student will be evaluated with a partner who will act as a real "model" for the identification of anatomical structures at the end of the semester and must find and identify bone, joint, muscle, nerve and vascular structures. The grade will be out of 10 points based on the number of structures requested to be correctly identified in a limited time, being necessary the identification of a myotendinous, vascular, nervous and osteoarticular structure. A practical test of recognition of anatomical structures on **REAL MODELS FOR PALPATORY ANATOMY (10%)** will be performed for the evaluation of knowledge of Blocks I (UPPER EXTREMITY) at the end of the semester.

The grade of the block will correspond to the grade obtained in these tests (ANATOMIC MODELS + PALPATORY ANATOMY) which must be equal to or higher than 5/10 through the weighted average of the two tests. The average will be based on a minimum grade of 4 in each test separately. In the case of not obtaining this qualification, the extraordinary call will be resorted to, evaluating the test not passed, so that each test must exceed 5.

8. CHRONOGRAM

In this section you will find the chronogram with dates for the delivery of evaluable activities of the course:

Evaluable activities	Date
Thematic Block I	Week 1-16
EVALUATION	Week 15-16

This schedule may be subject to modifications due to logistical reasons. Any modification will be notified to the student in due time and form.

9. BIBLIOGRAPHY .

The reference work for the follow-up of the subject is:

The recommended bibliography is listed below:

SOBOTTA (2012) Atlas of human anatomy. General anatomy and locomotor system. 23rd edition. Elsevier.

PLATZER (2008) Atlas of anatomy with clinical correlation. Panamericana.

PROMETHEUS (2015) Anatomy. Student's handbook. Elsevier.

DRAKE. (2013) Gray, Basic Anatomy. Elsevier.

GRAY (2015) Anatomy for students. 3rd Edition. Elsevier.

TORTORA (2013) Principles of Anatomy and Physiology. 13th Edition. Panamericana.

THIBODEAU (2012). Structure and function of the human body 14th edition. Elsevier.

NETTER (2014). Anatomy coloring book 2nd edition. Elsevier.

CAEL (2013). Functional Anatomy. Structure, function and palpation of the locomotor system for manual therapists. Panamericana.

MOORE (2013) Anatomy with clinical orientation. 7th Edition. Wolters Kluer Health/Lippincott Williams & Wilkins.

10. EDUCATIONAL GUIDANCE AND DIVERSITY UNIT

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

This Unit offers students:

Accompaniment and follow-up through counseling and personalized plans for students who need to improve their academic performance.
In terms of attention to diversity, non-significant curricular adjustments are made, that is, in terms of methodology and evaluation, for those students with specific educational support needs, thus pursuing equal opportunities for all students.
We offer students different extracurricular training resources to develop various competencies that will enrich their personal and professional development.
Vocational guidance through the provision of tools and counseling to students with vocational doubts or who believe that they have made a mistake in their choice of degree program

Students in need of educational support can write to us at:
orientacioneducativa@universidadeuropea.es

11. SATISFACTION SURVEYS

Your opinion matters!

Universidad Europea encourages you to participate in satisfaction surveys to detect strengths and areas for improvement about the faculty, the degree program and the teaching-learning process.

Surveys will be available in the survey area of your virtual campus or through your e-mail.

Your assessment is necessary to improve the quality of the degree.

Thank you very much for your participation.