1. BASIC INFORMATION

<table>
<thead>
<tr>
<th>Course</th>
<th>Anatomy of the Musculoskeletal and Nervous System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree program</td>
<td>Physical Therapy degree</td>
</tr>
<tr>
<td>School</td>
<td>Faculty of Sports Sciences</td>
</tr>
<tr>
<td>Year</td>
<td>1st</td>
</tr>
<tr>
<td>ECTS</td>
<td>6 ECTS (150 hours)</td>
</tr>
<tr>
<td>Credit type</td>
<td>MANDATORY</td>
</tr>
<tr>
<td>Language(s)</td>
<td>SPANISH, FRENCH AND ENGLISH</td>
</tr>
<tr>
<td>Delivery mode</td>
<td>PRESENTIAL</td>
</tr>
<tr>
<td>Semester</td>
<td>2nd semester</td>
</tr>
<tr>
<td>Academic year</td>
<td>22-23</td>
</tr>
<tr>
<td>Coordinating professor</td>
<td>Jaime Almazán/Charles Cotteret</td>
</tr>
<tr>
<td>Professor</td>
<td>Jaime Almzán Polo</td>
</tr>
</tbody>
</table>

2. PRESENTATION

In line with one of the general objectives of the University, which is to train professionals, knowledge of anatomy is essential to understand the language of health. The anatomy of the musculoskeletal system and nervous system is the base on which the physical therapist’s scientific knowledge is based. The knowledge and skills that are 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.

3. COMPETENCIES AND LEARNING OUTCOMES

Core skills (CS):

- CS 1: Students have demonstrated possession and understanding of knowledge in an area of study that is based on general secondary education, and is usually found at a level that, although supported by advanced textbooks, also includes some aspects that involve knowledge from the forefront of their field of study.
• CS 2: That students know how to apply their knowledge to their work or vocation in a professional manner and possess the skills that are usually demonstrated through the development and defense of arguments and problem solving within their area of study.
• CS 4: That students can transmit information, ideas, problems and solutions to both a specialized and non-specialized audience.
• CS 5: That students have developed those learning skills necessary to undertake further studies with a high degree of autonomy.

Cross-curricular skills (CCC):
• CCS 3: Organization and planning capacity
• CCS 4: Capacity for analysis and synthesis
• CCS 3: Critical reasoning.
• CCS 19: Autonomous learning.

Specific skills (SS):
• SS 29: Know and use the International Anatomical Nomenclature to name the different anatomical structures.
• SS 30: Describe anatomical structures with appropriate language.
• SS 33: Recognize anatomical structures with imaging techniques.
• SS 34: Have the ability to understand and synthesize simple anatomical articles.
• SS 36: Respect the practice material.
• SS 112: Identify and know the morphology of the bone, joint, muscular, nervous and vascular components of the musculoskeletal system.
• SS 113: Relate the shape of the elements of the musculoskeletal system with their function.
• SS 114: Know and identify the components of the nervous system, and their function.
• SS 115: Know the relationships between anatomical structures.

Learning outcomes (LO):
• LO 1: Understanding of fundamental concepts related to the contents of the subject.
• LO 2: Description of the anatomical structures included in the subject.
• LO 3: Ability to establish relationships between the structure and function of different elements of the neurological and locomotor systems.
• LO 4: Recognition of anatomical structures through imaging techniques.
• LO 5: Comprehension and synthesis of texts related to the subject.

The following table shows the relationship between the competencies developed during the course and the learning outcomes pursued:

<table>
<thead>
<tr>
<th>Core competencias (CC)</th>
<th>Learning outcomes (LO)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 29, CS 36, CCS 3</td>
<td>LO1: Understanding of fundamental concepts related to the contents of the subject.</td>
</tr>
<tr>
<td>SS 30, SS 112, CCS 4, CS 4</td>
<td>LO2: Description of the anatomical structures included in the subject.</td>
</tr>
<tr>
<td>SS 113, SS 114, CCS 13, CS 2, CS 5</td>
<td>LO3: Capacidad de Establecer de relaciones entre la estructura y la función de diferentes elementos de los aparatos neurológico y locomotor.</td>
</tr>
<tr>
<td>SS 33, SS 115, CCS 13</td>
<td>LO4: Ability to establish relationships between the structure and function of different elements of the neurological and locomotor systems.</td>
</tr>
<tr>
<td>SS 34, CCS 19, CS 1</td>
<td>LO5: Comprehension and synthesis of texts related to the subject.</td>
</tr>
</tbody>
</table>

4. CONTENT

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

THEMATIC BLOCK I: Peripheral Nervous System.
Topic 1. Peripheral nervous system

THEMATIC BLOCK II: Trunk musculoskeletal system
Topic 2. Vertebral column.
Study of the entire spine. General, regional and individual characteristics of the vertebrae. spinal joints

**Topic 3. Skeleton of the thorax.**

**Topic 4. Muscles of the Back**

**Topic 5. Muscles of the thorax**
Intercostal muscles. Triangular muscle of the sternum. Diaphragm muscle.

**Topic 6. Muscles of the Abdomen**
Anterior and anterolateral muscles groups of the abdomen.

**THEMATIC BLOCK III: LOWER EXTREMITY (osteology, arthrology, myology, vascularization)**

**Topic 7. Osteology of the lower extremity.**

**Topic 8. Pelvic girdle.**

**Topic 9. Coxofemoral joint.**

**Topic 10. Knee joint.**

**Topic 11. Joint complex of the ankle.**

**Topic 12. Joints of the foot.**

**Topic 13. Muscles of the hip.**

**Topic 14. Muscles of the thigh.**

**Topic 15. Muscles of the leg.**

**Topic 16. Short muscles of the foot.**

**Topic 17. Functional anatomy of the foot.**
Plantar vault. Foot support points. Functional anatomy of the motor muscles of the ankle joint and of the other joints of the foot.

**Topic 18. Vascularization of the lower limb.**
Femoral and popliteal arteries. Leg arteries. Arteries of the foot and fingers. Veins and lymphatics of the lower limb.

**Topic 19. Innervation of the lower extremity.**

**THEMATICAL BLOCK IV: UPPER EXTREMITY (osteology, arthrology, myology, vascularization)**

**Topic 20. Shoulder girdle.**

**Topic 21. Osteology of the upper limb.**
Humerus, ulna and radius. Bones of the hand.

**Topic 22. Shoulder joint complex.**

**Topic 23. Elbow joint.**
humeroulnar joint. humeroradial joint. Proximal radioulnar joint

**Topic 24. Joints of the carpus and the hand.**

**Topic 25. Muscles of the shoulder.**

**Topic 26. Muscles of the arm.**

**Topic 27. Muscles of the forearm.**
Generalities and classification.
Medial muscle group. Lateral muscle group. Posterior muscle group. Fibrous and synovial sheaths.

**Topic 28. Short muscles of the hand and fingers.**

**Topic 29. Vascularization of the upper limb.**
Axillary, brachial, ulnar, and radial arteries. Veins and lymphatics of the upper limb.

**Topic 30. Innervation of the upper extremity.**

**THEMATIC BLOCK V: HEAD AND NECK**
Topic 31. Study of the head as a whole.

**Topic 32. Muscles of the head and mimic.**

**Topic 33. Trigeminal and facial nerves.**
Description and branch’s distribution.

**Topic 34. Muscles of the neck.**
Muscles of the anterior region of the neck. Muscles of the posterior region of the neck.

**Topic 35. Cervical plexus.**
Constitution. Collateral and terminal branches.

**5. TEACHING-LEARNING METHODOLOGIES**
The types of teaching-learning methodologies used are indicated below:

- Master class.
- Simulation environments.
- Cooperative learning.
- Autonomous Learning.
6. LEARNING ACTIVITIES

Listed below are the types of learning activities and the number of hours the student will spend on each one:

**Campus-based mode:**

<table>
<thead>
<tr>
<th>Learning activity</th>
<th>Number of hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity A. Master Class</td>
<td>22</td>
</tr>
<tr>
<td>Activity B. Self-study</td>
<td>50</td>
</tr>
<tr>
<td>Activity C. Laboratory practices</td>
<td>10</td>
</tr>
<tr>
<td>Activity D. Class practices</td>
<td>24</td>
</tr>
<tr>
<td>Activity E. Case study analysis</td>
<td>14</td>
</tr>
<tr>
<td>Activity F. Virtual seminars</td>
<td>20</td>
</tr>
<tr>
<td>Activity G. Tutoring classes</td>
<td>10</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>150</strong></td>
</tr>
</tbody>
</table>

7. ASSESSMENT

Listed below are the assessment systems used and the weight each one carries towards the final course grade:

**Campus-based mode:**

<table>
<thead>
<tr>
<th>Assessment system</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theoretical knowledge test</td>
<td>50%</td>
</tr>
<tr>
<td>Practical application tasks</td>
<td>30%</td>
</tr>
<tr>
<td>Practical examination of recognition of anatomical structures</td>
<td>20%</td>
</tr>
</tbody>
</table>

When you access the course on the *Campus Virtual*, you’ll find a description of the assessment activities you have to complete, as well as the delivery deadline and assessment procedure for each one.
7.1. First exam period (Ordinary call)

To pass the subject in ordinary call, the continuous evaluation process of the different training activities must be passed. The general evaluation scheme, divided by blocks, is as follows:

<table>
<thead>
<tr>
<th>Evaluable blocks</th>
<th>Evaluation system</th>
<th>Weight (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Theoretical knowledge test</td>
<td>50%</td>
</tr>
<tr>
<td>2</td>
<td>Practical application tasks</td>
<td>30%</td>
</tr>
<tr>
<td>3</td>
<td>Practical examination of anatomical structures recognition</td>
<td>20%</td>
</tr>
</tbody>
</table>

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

The evaluation methodology for the three evaluable blocks may be based on: multiple choice questions, short questions, open questions with and without length limitation, correspondence questions, questions with embedded answers, information summary 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 said test may vary with respect to that of the general call.

7.2. Second exam period (Extra-ordinary call)

To pass the subject in an extraordinary call, all the requirements set out above for the ordinary call must be acquired.
8. SCHEDULE

This table shows the delivery deadline for each assessable activity in the course:

<table>
<thead>
<tr>
<th>EVALUATION PERIODS</th>
<th>EVALUABLE ACTIVITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1-6</td>
<td>BLOCK I-II Laboratory practical class 0, 1 2 and 3 Test on line</td>
</tr>
<tr>
<td>Week 7-11</td>
<td>BLOCK III Laboratory practical class 4, 5 and 6 Test on line</td>
</tr>
<tr>
<td>Week 11-15</td>
<td>BLOCK IV Laboratory practical class 7, 8 and 9 Test on line</td>
</tr>
<tr>
<td>Week 16</td>
<td>EVALUATION Theoretical knowledge test; Practical application task; Practical examination of recognition of anatomical structures</td>
</tr>
</tbody>
</table>

This schedule may be subject to changes for logistical reasons relating to the activities. The student will be notified of any change as and when appropriate.

9. BIBLIOGRAFÍA

The main reference work for this subject is:


The recommended Bibliography is:

10. **DIVERSITY MANAGEMENT UNIT**

Students with specific learning support needs:

Curricular adaptations and adjustments for students with specific learning support needs, in order to guarantee equal opportunities, will be overseen by the Diversity Management Unit (UAD: Unidad de Atención a la Diversidad).

It is compulsory for this Unit to issue a curricular adaptation/adjustment report, and therefore students with specific learning support needs should contact the Unit at unidad.diversidad@universidadeuropea.es at the beginning of each semester.

11. **ONLINE SURVEYS**

Your opinion matters!

The Universidad Europea encourages you to participate in several surveys which help identify the strengths and areas we need to improve regarding professors, degree programs and the teaching-learning process.

The surveys will be made available in the “surveys” section in virtual campus or via e-mail.

Your assessment is necessary for us to improve.

Thank you very much for your participation.