# 1. BASIC DATA

| | |
|---|---|
| **Subject** | APPLIED PHYSICAL ASSESSMENT: SPINE |
| **Qualification** | PHYSIOTHERAPY |
| **School/Faculty** | FACULTY OF PHYSICAL ACTIVITY AND SPORT SCIENCES AND PHYSIOTHERAPY. |
| **Course** | FIRST |
| **ECTS** | 6 |
| **Character** | MANDATORY |
| **Language/s** | SPANISH/FRENCH/ENGLISH |
| **Modality** | PRESENT |
| **Semester** | S2 |
| **Academic year** | 2024/2025 |
| **Coordinating teacher** | María Blanco Morales and Francisco J. Fernández Rodríguez |

# 2. PRESENTATION

This compulsory subject is taught in the second semester of the first year of the Bachelor's Degree in Physiotherapy. It is a compulsory subject worth 6 ECTS.

This subject focuses on the bases of articular physiology of the spine. This subject prepares students to carry out an exploration and assessment of the limbs from a muscular, articular and neural approach through the validation, reliability and sensitivity of the tests used for their evaluation. Finally, the aim of this subject is for students to improve their clinical reasoning of the locomotor apparatus.

# 3. LEARNING OUTCOMES

### Knowledge:

CON7. Know and understand the sciences, models, techniques and instruments on which physiotherapy is based, articulated and developed.

CON8. Know the physiological and structural changes that can occur as a result of the application of physiotherapy.

CON10. Know and understand the physiotherapeutic methods, procedures and actions, aimed at both the actual therapy to be applied in the clinic for re-education or functional recovery, and at carrying out activities aimed at the promotion and maintenance of health.

CON11. Understand the importance of updating the knowledge, skills, abilities and attitudes that make up the professional competences of the physiotherapist.

- Identify assessment tests aimed at recognizing the patient's functional status.

**Skills:**

HAB1. Apply the different physiotherapy treatments with technical skill and in an integrated manner.

- Apply a proper physical examination of the cervical spine, based on correct palpation, inspection, scientifically validated joint and/or muscle tests.
- Apply a proper physical examination of the temporomandibular joint , wrist and hand, based on correct palpation, inspection, scientifically validated joint and/or muscle tests.
- Apply a proper physical examination of the dorsal spinet, based on correct palpation, inspection, scientifically validated joint and/or muscle tests and examinations.
- Apply a proper physical examination of the lumbar spine, based on correct palpation, inspection, scientifically validated joint and/or muscle tests and examinations.

**Competences:**

COMP2. Recognize patients' needs and possible dysfunctions.

COMP24. Transmit messages (ideas, concepts, feelings, arguments), both orally and in writing, strategically aligning the interests of the different agents involved in communication in the academic and professional environment.

COMP28. Integrate analysis with critical thinking in a process of evaluating different ideas or professional possibilities and their potential for error, based on objective evidence and data, leading to effective and valid decision-making.

COMP30. Show ethical behaviour and social commitment in conducting the activities of a profession, as well as sensitivity to inequality and diversity.

# 4. CONTENTS

## THEORY

1. Joint physiology of the spine, pelvis and temporomandibular joint.
    a. Joint physiology craneomandibular.
    b. Joint physiology thoracic.
    c. Joint physiology lumbar and sacroiliac joint.
2. Clinical Reasoning. Physiotherapy examination and diagnosis of spinal disorders: validation, reliability, sensitivity of the tests used for their assessment, from a muscular, joint and neural approach.
    a. Cervical area.
        i. Clinical Reasoning
        ii. Postural analysis and functional relationship of the region. iii.
        iii. Joint examination
        iv. Orthopedic tests
        v. Muscle examination
        vi. Neural examination
    b. Thoracic area
        i. Clinical Reasoning
        ii. Postural analysis and functional relationship of the region. iii.
        iii. Joint examination
        iv. Orthopedic tests
        v. Muscle examination
        vi. Neural examination

c. Thoracic area
    i. Clinical Reasoning
    ii. Postural analysis and functional relationship of the region. iii.
    iii. Joint examination
    iv. Orthopedic tests
    v. Muscle examination
    vi. Neural examination

3. Clinical Reasoning. Physiotherapy examination and diagnosis of pelvis disorders: validation, reliability, sensitivity of the tests used for their assessment, from a muscular, joint and neural approach.
    i. Clinical Reasoning
    ii. Postural analysis and functional relationship of the region. iii.
    iii. Joint examination
    iv. Orthopedic tests
    v. Muscle examination
    vi. Neural examination

4. Clinical Reasoning. Physiotherapeutic exploration and diagnosis of TMJ disorders: validation, reliability and sensitivity of the tests used for their assessment, from a muscular, articular and neural approach.
    i. Clinical Reasoning
    ii. Postural analysis and functional relationship of the region. iii.
    iii. Joint examination
    iv. Orthopedic tests
    v. Muscle examination
    vi. Neural examination

5. 5. Exploratory clinical reasoning: assessment through radiological, ultrasound and electromyographic test.
    a. Analysis of radiographic tests in the spine
    b. Analysis of ultrasound tests in the spine
    c. Analysis of electromyographic tests in the spine

## 5. TEACHING-LEARNING METHODOLOGIES

- Masterclass
- Case-Based Learning
- Workshop-based learning
- Simulation environments

## 6. TRAINING ACTIVITIES

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

**Face-to-face mode:**

| Training activity | Number of hours |
|---|---|
| Masterclasses | 12 |
| Practical application seminars | 18 |
| Analysis and resolution of clinical cases | 10 |
| Reporting and writing | 12 |
| Activities in workshops and/or laboratories | 20 |
| Autonomous work | 56 |
| Debates and colloquiums | 8 |
| Tutoring | 12 |
| On-site evaluation test | 2 |
| Total | 150 |

Description of the training activities to be developed in this subject.

**Activity 1- Integration of theoretical knowledge.**

- Master class. Debates.
- Teacher exposition in the classroom, with the aim of transmitting knowledge and activating cognitive processes in the student.
- Testing of the knowledge acquired on the syllabus developed in class.

**Activity 2- laboratory practicals**. Practical objective tests.

- Laboratory practicals
- Classroom practice and simulation environments
- Acquisition of manual dexterity through practical sessions for the assessment of the spine.

**Activity 3- Active methodologies**

*Oral presentations*

***Activity 3.1.1. Intercurricular activity with Anatomy: Design your own model.***
Students should be able to design a mock-up of an upper or lower limb joint using homemade materials or other technology that is as realistic as possible.
The model must have all the anatomical structures that are part of the joint *(Bone, Ligamentous, Intervertebral Disc or Meniscus)*. They should be able to explain the joint physiology of their assigned joint to their peers using the student-designed model as the only material.

*3.2.Reports or written submissions*

***Activity 3.2.1 Radiological testing activity*** Through this activity students will:

- They learn to differentiate and interpret physiological images of the upper and lower extremity in various imaging tests.
- Have the ability to interpret the relevant data provided by imaging tests in order to make a diagnostic judgement based on their knowledge of joint anatomy and physiology.
- The individual student has to interpret the image tests by indicating which are the numbered structures in the images collected in a Kahoot with image tests.
- At the end, all the groups will have a debriefing with the teacher.

*3.3. Problem Case*

***Activity 3.3.1. Interdisciplinary activity with speech therapy.*** The ST students will watch a video made by a physiotherapy teacher in which a functional exploration of the TMJ will be carried out from the articular, muscular and nervous point of view. On the other hand, the physiotherapy students will watch a video that will be elaborated by the ST students on the functional assessment of the wrist from their competence as occupational therapists.

Students of both degrees will answer individually via an electronic device in class a series of questions in order to reflect on the interdisciplinary work with physiotherapists. These questions will be based on qualitative research, will be in the form of a reflective diary and will be carried out using Vevox or kahoot software. A small joint debriefing will be carried out after this individual reflection.

***Activity 3.3.2. Interdisciplinary activity with speech therapy.*** Viewing of a real patient's anamnesis and designing, through the creation of a video, an objective examination for said patient. The student will view a video in which the anamnesis of a patient will be carried out.

• After viewing the video, they must describe and develop a plan for the assessment and physical examination of that patient, which they will present to the rest of the students through a video.

• Each group will explain the steps to follow to carry out a complete objective examination. At the end of the presentation by all the groups, a discussion/debate will be held on different ways of approaching the physical examination of the patient.

3.4. Performance evaluation

The student will be evaluated on their daily performance in the classroom.
This will be done by means of a rubric with which the teacher will assess transversal competences such as information management skills, ethical commitment, the ability to work in a team and critical reasoning skills.

# 7. EVALUATION

The following is a list of the assessment systems and their weighting in the total grade for the course:

**Face-to-face mode:**

| Evaluation system | Weight |
|---|---|
| Theoretical assessment tests | 20% |
| Practical evaluation tests 1 + 2 | 40% |
| Oral presentations | 10% |
| Reports and written submissions | 10% |
| Case/problem (clinical case) | 10% |
| Performance assessment (student day-to-day rubric) | 10% |

**Block I:** Knowledge **tests**

Objective knowledge tests: 60% of the total grade. This block will be assessed by means of 3 tests (1 theoretical test and 1 practical test):

*1. Theoretical: 20% of the total grade.* There will be a theoretical test consisting of a test-type part and another part with images where the student must complete with the joint physiology corresponding to the joint being evaluated. The grade must be higher than or equal to 5, the content being eliminatory.

*2. Practical exercises: 40% of the total grade.* It will be evaluated according to the rubric. Two practical tests will be carried out: the first with a weight of 20% which will evaluate the contents taught in the cervical and thoracic region and the second test with a weight of 20% which will evaluate the contents taught in the lumbar region, pelvis and TMJ. The grade for each test must be greater than or equal to 5, with the content being eliminatory.

**Attendance is compulsory in more than 50% of the practical classes, being an essential requirement for the student to be able to sit the final practical exams of the subject in the ordinary exams.**

If the necessary average is not reached, the student will have to take the part of block that was not passed in an extraordinary exam.

**Block II: active methodologies**

Active methodologies: 40% of the final grade. Included in the evaluation system as:

*1.* Oral *presentations*
*2. Reports or written submissions*
3. *Problem case*
*4. Performance evaluation*

The grade obtained in this block is the average of the activities carried out. It does not require a minimum cut-off mark for the average.

# 8. TIMETABLE

In this section you will find the timetable with dates for the delivery of evaluable activities of the subject:

| Assessable activities | Date |
|---|---|
| Theoretical assessment test | Week 18 |
| Practical assessment test | Week 5 and 13 |
| Activity 3.1.1. Cross-curricular activity with Anatomy: Design your model | Week 11 |
| Activity 3.2.1 Radiological testing activity | Week 15 |
| Activity 3.3.1. Interdisciplinary activity with speech therapy | Week 6 |
| Activity 3.3.1. Viewing of a real patient's anamnesis and designing, through the creation of a video, an objective examination for said patient. | Week 14 |

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

# 9. BIBLIOGRAPHY


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- Boyling, J and Jull G, (2005). *Grieve's Modern Manual Therapy*. *The Vertebral Column* 1st ed. Churchil Livingstone.
- Butler, D 2000, *The sensitive nervous system*, NOI Publications, Adelaide
- Butler, D 2009, *Explain Pain*, Practical notes from *NOI Courses,* University of Valencia, Valencia
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- Jones, N & Magarey, M (2011). "Neurodynamic assessment." Practical notes from *MPTP,* ICPY, UniSA, Adelaide.
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- Schifferergger, E (2009). "Mobilization of the NS." Practical notes from *NOI Courses,* FORTEMA, Pontevedra.

- "Understanding Pain in less than five minutes" [video] Australia: GP Access and Hunter Integrated Pain Service, NSW Goverment; 2011.

# 10. EDUCATIONAL GUIDANCE, DIVERSITY AND INCLUSION UNIT

From the Educational Guidance, Diversity and Inclusion Unit (ODI) we offer support to our students throughout their university life to help them achieve their academic achievements. Other pillars of our action 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:

1. Accompaniment and follow-up through counselling and personalised plans for students who need to improve their academic performance.
2. In terms of attention to diversity, non-significant curricular adjustments are made, i.e. in terms of methodology and assessment, for those students with specific educational support needs, thus pursuing equal 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 through the provision of tools and counselling to students with vocational doubts or who believe they have made a mistake in their choice of qualification.

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 teaching staff, the degree and the teaching-learning process.

Surveys will be available in the survey area of your virtual campus or through your email.

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

Thank you very much for your participation.