	PHYSIOTHERAPY (EHEA DEGREE) COURSE CATALOGUE	EUIF GIMBERNAT Fisioteràpia
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GENERAL INFORMATION

Course unit		ANATOMY I			
ECTS	6.00	Type of course unit	Basic education	Academic year	2016-2017
Delivered		SEMESTRALLY	Term / year		1 / 1
Lecturer		DR JOSÉ SIMÓN SÁNCHEZ DIAZ MS NEUS CIURANA MAYNEGRE MR AGUSTÍN LORENTE LAFUENTE			
Language of instruction		CATALAN/SPANISH			
Admission requirements		-----			

THE COURSE UNIT WITHIN THE CURRICULUM

- Course contents: Human anatomy.
- This unit tries to consolidate the morphological and functional bases of the locomotor system.
- The knowledge of anatomy is fundamental within the degree and the profession since it consolidates the bases of pathologies and therapies.

COMPETENCES

Specific Competences	E1. Demonstrate knowledge of the morphology, physiology, pathology, and conduct of both healthy and ill people in their natural and social environment.
Transversal competences	T1. Analyse and summarise.
Generic competences	G2. Develop strategies of autonomous learning.

LEARNING OBJECTIVES

Competence:

E1. Demonstrate knowledge of the morphology, physiology, pathology, and conduct of both healthy and ill people in their natural and social environment.

Learning outcomes


E1.2. Recognise the configuration of the anatomical structures in a living human being.

- E1.2.1. Recognise the structure of bones of the trunk.
- E1.2.2. Recognise the structure of joints of the trunk.
- E1.2.3. Recognise the structure of muscles of the trunk.
- E1.2.4. Recognise the structure of vessels and nerves of the trunk.
- E1.2.5. Recognise the structures of bones of the upper limb.

<p>E1.2.6. Recognise the structure of joints of the upper limb.</p> <p>E1.2.7. Recognise the structure of muscles of the upper limb.</p> <p>E1.2.8. Recognise the structure of vessels and nerves of the upper limb.</p> <p>E1.2.9. Recognise the structure of bones of the head and neck.</p> <p>E1.2.10. Recognise the structure of joints of the head and neck.</p> <p>E1.2.11. Recognise the structure of muscles of the head and neck.</p> <p>E1.2.12. Recognise the structure of vessels and nerves of the head and neck.</p> <p>E1.2.13. Recognise the structure of bones of the lower limb.</p> <p>E1.2.14. Recognise the structure of joints of the lower limb.</p> <p>E1.2.15. Recognise the structure of muscles of the lower limb.</p> <p>E1.2.16. Recognise the structure of vessels and nerves of the lower limb.</p> <p>E1.3. Explain the function of anatomical structures.</p> <p>E1.3.1. Explain the function of bones of the trunk.</p> <p>E1.3.2. Explain the function of joints of the trunk.</p> <p>E1.3.3. Explain the function of muscles of the trunk.</p> <p>E1.3.4. Explain the function of vessels and nerves of the trunk.</p> <p>E1.3.5. Explain the function of bones of the upper limb.</p> <p>E1.3.6. Explain the function of joints of the upper limb.</p> <p>E1.3.7. Explain the function of muscles of the upper limb.</p> <p>E1.3.8. Explain the function of vessels and nerves of the upper limb.</p> <p>E1.3.9. Explain the function of bones of the head and neck.</p> <p>E1.3.10. Explain the function of joints of the head and neck.</p> <p>E1.3.11. Explain the function of muscles of the head and neck.</p> <p>E1.3.12. Explain the function of vessels and nerves of the head and neck.</p> <p>E1.3.13. Explain the function of bones of the lower limb.</p> <p>E1.3.14. Explain the function of joints of the lower limb.</p> <p>E1.3.15. Explain the function of muscles of the lower limb.</p> <p>E1.3.16. Explain the function of vessels and nerves of the lower limb.</p> <p>E1.4. Localise the different anatomical structures by means of surface palpation.</p> <p>E1.4.1. Identify the main osseous details of the upper limb by means of palpation.</p> <p>E1.4.2. Identify the main articular structures of the upper limb by means of surface palpation.</p> <p>E1.4.3. Identify the main vascular and nervous structures of the upper limb by means of surface palpation.</p> <p>T1. Analyse and summarise.</p> <p>T1.1. Observe and obtain visual information data from anatomical images.</p> <p>G2. Develop strategies of autonomous learning.</p> <p>This is a competence that is developed by working competence “T1. Analyse and summarise”.</p>

CONTENTS

1. Introduction to the locomotor system
2. Anatomy of the trunk
3. Anatomy of the upper limb
4. Anatomy of the head
5. Anatomy of the neck
6. Anatomy of the lower limb

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TEACHING METHOD

Theoretical presentations. ICT- supported master classes where the main morphological, structural, and functional aspects of the specific anatomical regions will be taught.

Estimated time: 49.5 hours

Practical presentations. The teacher will explain, using a model, how the different palpation techniques are used. ICT-supported sessions.

Estimated time: 7.5 hours

Practice sessions of observation of anatomical dissection pieces

Estimated time: 3 hours

Practical activity The students will practice, among themselves and under the teacher's supervision, the different palpation techniques taught in class.

Estimated time: 7.5 hours

Group work. Producing a dossier on palpatory anatomy.

Estimated time: 10 hours


Autonomous work of individual study to prepare exams, organise notes/materials, tutorials: individually or in group.

Estimated time: 72.5 hours

ASSESSMENT METHOD

- **A final exam:** at the end of the term there will be a 40-question test. 0.05 marks will be subtracted for each wrong answer; unanswered questions will neither subtract nor add marks.
- **A practical final exam:** it will be done together with the final theoretical exam. The student will have to recognise 10 anatomical structures that will be presented in power-point. 0.05 marks will be subtracted for each wrong answer; unanswered questions will neither subtract nor add marks.
- **Continuous assessment of palpation:** on a specific day, to be set depending on the programme's development, the students will be asked to palpate some anatomical structures on a partner.
- **Assessment of the dossier on palpatory anatomy:**
 - Periodically there will be tutorials in groups to assess the work done so far.
 - The mark will be the same for all the member of the group.

See the table below showing the different percentages of each activity that makes up the final mark:

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CONCEPT	PERCENTAGE
CONTINUOUS ASSESSMENT OF PALPATION	10%
DOSSIER ON PALPATORY ANATOMY	5%
THEORETICAL FINAL EXAM	75%
PRACTICAL FINAL EXAM	10%

In order to pass the course, the following conditions have to be met:

- The mark in the final exam has to be equal to or over 5.
- The final mark has to be equal to or over 5.

MATERIAL / BASIC RECOMMENDED AND REQUIRED READINGS

Books					
Llusà-Merí-Ruano	2004	Manual y atlas fotográfico de anatomía del aparato locomotor	Madrid	Editorial Médica Panamericana	
Rouvière-Delmas	1999	Anatomía humana descriptiva, topográfica y funcional	Barcelona	Masson	
Moore	1986	Anatomía con orientación clínica	Barcelona	Editorial Médica Panamericana	
Drake-Vogl-Mitchell	2005	Gray. Anatomía para estudiantes.	Madrid	Elsevier.	
Feneis	2000	Nomenclatura anatómica ilustrada	Barcelona	Masson	
Latarjet M, Ruíz Liard A	1988	Anatomía humana	Buenos Aires	Editorial Médica Panamericana	
Netter	2003	Atlas de anatomía humana	Barcelona	Masson	
Orts Llorca	1981	Anatomía Humana	Barcelona	Editorial Científico-Médica	
Platzer	1987	Atlas de anatomía para estudiantes y médicos	Barcelona	Ediciones Omega	
Rohen-Yokochi	1989	Atlas fotográfico de anatomía humana	Barcelona	Ediciones Doyma	
Schünke-Schulte-Schumacher	2005	Prometheus. Texto y atlas de anatomía		Editorial Médica Panamericana	
Snell	2000	Anatomía clínica para estudiantes de medicina	México DF	McGraw-Hill Interamericana	
Sobotta-Staubesand	1990	Atlas de anatomía humana	Madrid	Editorial Médica Panamericana	
Testut-Latarjet	1977	Tratado de anatomía humana	Barcelona	Salvat Editores	
Tixa, S.	2000	Atlas de anatomía palpatoria del cuello, tronco y extremidad superior. Investigación manual de superficie	Barcelona	Masson	

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GENERAL INFORMATION

Course unit		PHYSIOLOGY I			
ECTS	6.00	Type of course unit	Basic education	Academic year	2016-2017
Delivered		SEMESTRALLY	Term / year		1 / 1
Lecturers		Dr JOAN CABROL DR. ISHAR DALMAU			
Language of instruction		CATALAN – SPANISH – ENGLISH			

THE COURSE UNIT WITHIN THE CURRICULUM

- Course contents: Physiology**

This course unit tries to provide the student with the basic knowledge of the cell as a functional basic unit, human biochemistry and histology. It also includes the study of the different systems and organs of the human body.

Physiology is the science that studies the healthy human being in order to better understand the physiopathological conditions that lead to disease.

Human physiology provides basic knowledge for health science students since it helps them understand the mechanisms the organism uses to keep its internal equilibrium.


The understanding of the human being as a living being does not only imply understanding the individual functioning of each of the organs and systems but also their different interrelations and controls.

The study of human body physiology also requires acquiring basic knowledge of biochemistry in order to understand cellular and tissular function and structure as well as body metabolism.

Distinguishing the different tissues and their specific characteristics will be basic for the would-be physiotherapist, taking into account that his /her actions are centred on one or more tissues.

All this knowledge of physiology, biochemistry, and histology will be the pillar of the basic knowledge of the human body, which is indispensable in the studies of physiotherapy. Applying all this knowledge to the understanding of body functions in good health, lesion or disease will be a key factor for the professional development of the physiotherapist.

On the other hand, this course unit tries to stimulate the students' critical thinking towards science and its paradigms taking the knowledge of scientific methodology as a base. It also tries to develop the students' ability to summarise information and express themselves in an adequate register.

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COMPETENCES

Specific competences	E1. Demonstrate knowledge of the morphology, physiology, pathology, and conduct of both healthy and ill people in their natural and social environment. E2. Demonstrate knowledge of the principles, models, techniques, and instruments around which physiotherapy is developed and articulated.
Transversal competences	T1. Analyse and summarize. T5. Problem solving
Generic competences	G2. Develop strategies of autonomous learning.

LEARNING OBJECTIVES

The objectives of this course unit will allow a complete assessment of the students. Comparing the goals achieved by the students with those they are supposed to have acquired will be the base of the assessment for the teacher and for the students. On the other hand, the fact that the students know these objectives at the beginning of the course is a valuable aspect in order to advise and guide them in their studies, self-evaluate their learning process, and correct or modify any errors. The learning process is fostered if the objectives are clearly set. If that is not the case, the students tend to focus on passing exams.

Specific competence:

E1.Demonstrate knowledge of the morphology, physiology, pathology, and conduct of both healthy and ill people in their natural and social environment.

Learning outcomes:

E1.9. Explain the functioning of the human body in good health in order to have a solid basis to understand the processes that lead to disease.

- Explain the concepts of introduction to human physiology and discuss the homeostatic principles.
- Reason the basic concepts of the chemistry and general structure, biological functions and reactions of the main organic and inorganic compounds in the human body.
- Discuss the cellular organization of the organism putting emphasis on the functions and interactions of the different cell components.
- Identify the different types of tissues and discuss the relationship between structure and function.

Blood physiology:

- Describe blood structure and functions.
- Differentiate microscopically the different cells that blood is made up of.
- Describe blood plasma composition and functions.
- Explain the different blood types and the importance of the Rh blood group system in mother-child incompatibility.
- Describe the homeostatic process.
- Have a wide knowledge of lymphocytes and immunity.

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Muscular tissue:

- Explain the body functions of the smooth muscle.
- Differentiate the three types of muscular tissue.
- Describe the structural characteristics of skeletal and smooth muscle.
- Relate the structure of the skeletal muscle to muscular contraction.
- Explain the different types of skeletal muscle fibres in relation to their biochemical, structural, and functional differences.

Gastrointestinal tract:

- Identify the different organs of the digestive system and explain their functional structure.
- Describe the motility of the gastrointestinal tract and its different movements.
- Explain secretion in the different regions of the gastrointestinal tract.
- Explain food digestion and absorption.
- Correlate the nervous and hormonal mechanisms of digestive functions.

Structure and functions of the liver:

- Describe the physiological anatomy of the liver.
- Explain the metabolic function of the liver on carbohydrates, fats and proteins.
- The liver as a storage organ for vitamins and other elements.
- Analyse the liver as a detoxifying organ.

Connective tissue:

- Differentiate between connective tissue and specializations.
- Define the concept of extracellular matrix (ECM).
- Associate each ECM component to a biomechanical characteristic.
- Enumerate the functions of connective tissue.

Specializations of connective tissue

- Explain the body functions of osseous tissue.
- Describe the structural characteristics of osseous tissue.
- Describe the mineralization process and its influencing factors.
- Understand the mechanical and hormonal influence in the remodelling process.
- Describe the structural and functional characteristics of adipose tissue.

Metabolism and nutrition:

- Describe the regulation of metabolism, body growth, and energy balance.
- Explain the regulation of body temperature and the acclimatisation process to heat and cold.
- Discuss food regulation, dietetic balance and assess the importance of a balanced diet.


E1.7. Identify the physiological and structural changes that can occur due to a lesion and/or disease in the different tracts and systems.

Digestive tract:

- Analyse the physiological, nervous, and hormonal changes in the processes of alteration of gastrointestinal motility and their repercussions both in food digestion and absorption.
- Discuss the processes of nutrient malabsorption as a consequence of structural alterations in the mucosa.
- Explain the metabolic processes induced by massive intestinal resections. Short bowel syndrome.
- Analyse the different physiopathological situations induced by the alteration of sphincter competence.

Blood physiology:

- Analyse the different alterations in a blood count and find their correlation with basic haematological problems such as anaemia, polycythemia, alterations of the hematocrit and

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erythrocyte sedimentation rate, infection and its causal mechanism.

- Identify the different coagulation factors and the type of disease their lack will lead to.
- Explain blood coagulation alterations and their implication in the production of thrombosis and embolisms.
- Discuss immunity and its alterations. Describe the antigen-antibody mechanism. Explain the allergic processes and their repercussions in our organism.

Metabolism and nutrition:

- Describe the alterations of thermoregulation: fever, hyperthermia and hypothermia and their causal mechanisms.
- Explain the alterations of food ingestion control and the concepts of malnutrition and obesity.
- Apply the metabolic biochemical knowledge to the context of physical exercise.
- Apply the biochemical and histological knowledge of adipose tissue in the context of obesity.
- Apply the histological knowledge of osseous tissue in the context of osteoporosis.

E1.11. Identify a situation of vital risk and know how to provide basic and advanced life support.

- Explain the characteristics of hyperthermia and how to treat it.
- Describe the conditions of hyperthermia and its treatment to make this situation reversible.
- Identify the characteristics of an acute haemorrhage.

Specific competence:

E2. Demonstrate knowledge of the principles, models, techniques, and instruments around which physiotherapy is based and articulated.

Learning outcomes:

E2.1. Explain the theories of cellular biology, taking the cell as a functional unit.

- Identify the main cellular components and their functions.

E2.2. Explain the biochemical fundamentals of the functioning of the human body.

- Recognise the main biomolecules and associate them to a body function and location.
- Differentiate the main metabolic routes in relation to their catabolic and anabolic function.
- Classify the main metabolic and catabolic routes depending on the type of substrate (proteins, carbohydrates, lipids)
- Describe the processes in the main metabolic routes.
- Define the final objective of the major processes in the main metabolic routes.


Transversal competence:

T1. Analyse and summarise.

- Extract information from some medication data specifications in relation to the target tissue and its function.
- Write a report on the data specifications of a given medication.
- Construct a concept map.

T5. Problem solving

- Identify the altered main parameters of a medical test.
- Devise an action plan to identify the causal factors associated with the alteration of the

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<p>parameter.</p> <ul style="list-style-type: none"> Formulate explicative hypotheses. <p>Generic competence:</p> <p>G2. Develop strategies of autonomous learning This is a competence that is developed by working competence “T1. Analyse and summarise” and “T5. problem solving”</p>
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CONTENTS

<ol style="list-style-type: none"> Introduction Blood physiology Muscle tissue Digestive system Connective tissue Specializations of connective tissue Metabolism and nutrition <p>PRACTICALS:</p> <ol style="list-style-type: none"> Construct concept maps Cardiopulmonary resuscitation Blood types General bases of immunity (classroom practice) Physiopathological consequences of alterations in the digestive tract (classroom practice) Metabolism and its variations (classroom practice)

TEACHING METHOD

<p>Master classes:</p> <p>The students will be provided with the theoretical bases on biochemistry, cell biology, histology, and physiology.</p> <p>The students will learn by means of deductive procedures so that at the beginning of each unit some questions will be asked that will be answered as the learning process is developed. The aim is for the students themselves to find these answers using the different activities included in this course unit.</p> <p>The students can ask questions and these will be discussed in class.</p> <p>ICT-supported master classes account for 30% of the total workload, i.e. 45 hours.</p> <p>Practical classes</p> <p>Practical classes will consist of practical presentations by the teacher and practical activities by the students.</p> <p>In these practical presentations, the teacher will explain the aim and procedures to be used in each case, which will always be related to the topics and main procedures in physiology. This part will account for 5% of the total workload (7.5 hours).</p>

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The students' activities will be supervised and assessed by the teacher.

1. **Constructing concept maps**

The teacher will explain how to construct a concept map. The students, under the teacher's supervision, will put that into practice. The session will finish with the correction of the concept map and solving doubts.

Two 2.5-hour sessions = 5 hours

2. **Cardiopulmonary resuscitation**

The teacher will explain the main goals of the practice that are:

- Know the symptoms and signs of a respiratory and/or cardio-circulatory arrest and the physiopathological situations that can lead to them.
- Explain what needs to be taken into account before performing CPR.
- Reproduce the manoeuvres of respiratory ventilation.
- Reproduce the techniques for external cardiac massage.
- How to act in case of a cardio-respiratory arrest.
- Raise doubts and problems.

A 3-hour session.

3. **Blood types**

The teacher will explain the main goals of the practice that are:

- Know each individual student's ABO and Rh blood group system
- Understand incompatibility in blood transfusions.
- Understand the antigen-antibody reaction using each individual student's monoclonal antibodies and erythrocytes.

A 2-hour session.

4. **General bases of immunity**

The main goals of the practice are:


- Learn the main functions of the immune system.
- Describe the key characteristics of the most common pathogens that attack the organism.
- Name three layered defences and their properties.
- Differentiate between innate and adaptive immunity and their characteristics.
- Understand the differences between antigen and antibody..
- Differentiate between humoral and cellular immunity.

Classroom practice. 2-hour session.

5. **Physiopathological consequences of alterations in the digestive tract.**

The main alterations of the digestive system that lead to disease will be described.

Classroom practice. 1.5-hours session.

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6. Metabolism and its variations

The students will be taught the different ways to measure basal metabolic rate and the formulae and tables used in a clinic. All the circumstances affecting the basal metabolism will be stressed.

Classroom practice. 1.5-hour session.

Group work

The groups will consist of around eight members and will be maintained all along the term. These will also be maintained for the practical sessions.

1. work on data specifications
2. work on a medical test

These represent 10% of the total workload, i.e. 15 hours.

Work on medication data specifications:

Each member of the group will have to write a report on the data specifications of three medications previously agreed upon.

In the report, the active principle and brand name will be mentioned, as well as the following:

- type of molecule
- tissue/s on which it acts
- action at tissular level
- system or organ on which it acts
- action at physiological level.

The information will be obtained from the “Agència Espanyola dels medicaments” (Drug Spanish Agency)

The data specifications will be handed in by the three deadlines set at the beginning of the course.

Work on a medical test

At the end of the term, each group will hand in a paper on different parameters of a medical test.

At the beginning of the course, the students will be given a medical test with some questions they will have to answer.

The group members will have to organise themselves in order to search the necessary information and write the paper. How the different tasks are organised will also be considered part of the paper to be evaluated

Autonomous activities:

Exam preparation, bibliographical search, tutorials, organization of materials / notes, etc.

Information search in different formats both to complement the teacher’s explanations and to prepare the corresponding papers and practical activities.

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These activities account for 10% of the total workload, i.e. 15 hours.

Studying, drawing up guidelines, constructing concept maps, writing summaries, making lists of doubts, etc represents 40% of the total workload, i.e. 60 hours.

ASSESSMENT METHOD

The following activities will be assessed:

1. Medication data specifications

The final mark of the medication data specifications will be the average of the three marks obtained for the three specifications.

Each of them will be scored out of 10. The aspects below will be measured as follows:

- 1.25 marks for presentation
- 1.5 marks for expression (using the right register and vocabulary)
- 1.25 marks for each correct answer
- 1 mark for bibliography

The medication data specifications represent 10% of the final mark.

2. Written paper on medical tests

The final mark will be shared among all the members of the group and handing this paper in is compulsory in order to pass the subject.

Those papers that do not meet the specifications given by the teacher or those that are handed in passed the deadline will not be marked.

The papers will be scored out of 10. The aspects below will be measured as follows:


- 1 mark for presentation
- 1 mark for each correct answer
 - 1 mark for bibliography
 - 1 mark for organisation

An answer is correct when:

- The content is correct
- The register is adequate
- The students use their own words

Before the paper is written, the students must state how the group is organised in relation to the different tasks it involves. The mark given for organisation can be negative if a student has not participated at the level required.

The paper accounts for 15% of the final mark.

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3. Practical activities:

Conceptual maps

The mark obtained for the conceptual maps will be based on two parameters:

- Participation (50%)
- Constructing a concept map (50%)

Participation will be evaluated taking into account attendance and work in class. It is compulsory to attend minimum 80% of the practical classes and absences must be justified.

The construction of a conceptual map will be evaluated with the last conceptual map in the last session. The following aspects will be assessed:

- content
- outline
- concept relations
- presentation

The mark of these practical activities represents 50% of the mark given for the practicals.

Cardiopulmonary resuscitation and blood types practicals:

The following aspects will be assessed:

- Ability to obtain results.
- Behaviour, attitude, and motivation during the practical session.

In order to pass the practicals it is obligatory to attend minimum 80% of the practice classes and absences must be justified. These absences will not be taken as an excuse about not answering questions in the final exam.

These practice sessions represent 50% of the mark given for the practicals.

The mark for the practicals accounts for 15% of the final mark.

4. Final exam

There will be a final exam including 50 5-option multiple choice questions. Each correct answer amounts to 0.20 and 4 wrong answers amount to 0.20.

This represents 60% of the final mark.

General considerations:

In order to pass this course unit, the following conditions must be met:

- In the final exam, the student must get a mark of 5 or over.
- Pass the practicals: attendance and contents
- In the papers, the student must get at least a mark of 4.5


Not fulfilling these conditions will involve not passing the course.

Assessment table:

Activity to be evaluated	Percentage
Medication data specifications	10 %
Paper on medical test	15 %
Practice sessions	15 %
Exam	60 %

MATERIAL / BASIC RECOMMENDED AND REQUIRED READINGS

Author	Year	Title	City	Publisher
Wheater, P.R.; Burkitt, H.G.; Stevens, A.; Lowe, J.S	1992	Histopatologia bàsica		Churchill Livingstone
Yong, b.; Heath, J.W.	2002	Histologia funcional: texto y atlas en color	Madrid	Elsevier Science
Kierszenbaum, A.L.	2002	Histology and cell biology	Massachusetts	Mosby
Gartner, L., Hiatt, J.	2003	Texto i atlas de histologia	Mexic	Mc Graw Hill
Junqueira, J.L.; Carneiro, J.	2005	Histologia bàsica	Barcelona	Masson
Stevens, A., Lowe, J.	1993	Texto y atlas de histologia	Madrid	Mosby/ Doyma libros
Albers et al.	1996	Biologia molecular de la celula	Barcelona	Omega
Lehninger, Nelson, Cox	1995	Principios de Bioquímica	Barcelona	Omega
Nordin, M.; Frankel, V.	2004	Biomecànica bàsica del sistema musculoesquelètic	Madrid	McGraw-Hill Interamericana
Ganong, Villiam F	2006	Fisiología Médica		Manuel MODerno
Guyton&Hall	2007	Compendio de Fisiología Médica		Elsevier
Koeppen	2009	Berne y Levi. Fisiología		Elsevier
Fox Stuart	2008	Fisiología Humana		McGraw-Hill
Silverthorn	2008	Fisiología Humana. Un enfoque integrado.		Panamericana
Gal B	2007	Bases de la Fisiología		Tebar Flores
Barret K	2007	Fisiología Gastrointestinal		Interamericana
Tresguerres J.	2005	Fisiología Humana		McGraw-Hill
Pocock G.	2005	Fisiología Humana. La base de la Medicina		Masson
Thibodeau	2007	Anatomía y Fisiología		Elsevier

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GENERAL INFORMATION


Course unit		APPLIED PHYSICS			
ECTS	6.00	Type of course unit	Basic education	Academic year	2016-2017
Delivered		SEMESTRALLY	Term / year		1 / 1
Lecturers		Mr Raúl Montes Usategui Mr Lluís Auguet Carbonell.			
Language of instruction		CATALAN / SPANISH			
Admission requirements		-----			

THE COURSE UNIT WITHIN THE CURRICULUM

- Course contents: Biophysics
- This unit tries to apply the knowledge and laws of classical physics, statics and dynamics to the human body, which will allow us to define biomechanics and its principles.
- The knowledge of biomechanics, from a theoretical and practical perspective, is fundamental within the degree and the profession.

COMPETENCES

Specific competences	E2. Demonstrate knowledge of the principles, models, techniques, and instruments around which physiotherapy is developed and articulated.
Transversal competences	T1. Analyse and summarise. T5. Problem solving.
Generic competences	

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LEARNING OBJECTIVES

E2. Demonstrate knowledge of the principles, models, techniques, and instruments around which physiotherapy is developed and articulated.

Learning outcomes:

E2.8. Explain the principles and theories of physical agents and their application in physiotherapy.

Learning objectives:

E2.8.1. Describe the basics of statics as the foundation for the correct comprehensive analysis of the structure of the human body.

E2.8.2. Define the physical bases of dynamics to subsequently better understand the specific aspects of biodynamics.

E2.8.3. Describe the basic concepts of strength of materials as the foundation for their subsequent application to the understanding of internal tensile stress states

E2.8.4. Define the basic concepts of electrodynamics, thermodynamics, and wave motion, and recognise their principal physical magnitudes (intensity, potential difference, resistivity, specific heat capacity, heat transfer coefficient, frequency, period, etc.) to fully understand the different therapies.

E2.9. Explain the principles of biomechanics and electrophysiology and their main applications in the field of physiotherapy.

Learning objectives:

E2.9.1. Describe the fundamentals of the biomechanical applications most commonly used in the clinical, sports, and occupational fields

E2.9.2. Integrate the biomechanical behaviour of the structures that make up the locomotor system with their practical application.

E2.9.3. Identify normality of movement and its possible alterations.

E2.9.4. Identify the elements involved in body movement.

E2.9.5. Describe the main techniques for the analysis of movement, their characteristics, and possible applications.

E2.9.6. Define the principles of electrophysiology.

T1. Analyse and summarise.

Learning objectives:

T1.1. Ask adequate questions.

T1.2. Observe and obtain visual information clinical data from a video or picture

T5. Problem solving.

Learning objectives:

T5.1. Identify, in a given situation, what the problem/s are.

T5.2. Determine the objectives to be achieved in relation to the problems previously identified..

CONTENTS

FUNDAMENTALS OF PHYSICS

1. Fundamentals of vectorial mechanics.
2. Static equilibrium: actions and reactions.
3. Principles of Newtonian mechanics.
4. Mechanical efforts: axial effort, shear strength, bending moment, torsional moment
5. Tensions derived from mechanical efforts.
6. Tensions and deformations.
7. Basic concepts of electrodynamics.
8. Basic concepts of thermodynamics.
9. Basic concepts of wave motion.
10. Basic concepts of electrophysiology.

BIOMECHANICS

1. Introduction of biomechanics.
General concepts.
2. Biomechanics of bone.
3. Biomechanics of cartilage.
4. Biomechanics of muscle.
5. Biomechanics of tendons and ligaments.
6. Biomechanics of blood and nervous structures.
7. Articular biomechanics of the upper limb.
8. Articular biomechanics of the lower limb.
9. Biomechanics of the vertebral column.
10. Biomechanics of gait.

TEACHING METHOD

Directed activities:


- ITC-supported master classes that will provide the student with the necessary theoretical basis and numerical and non-numerical practical examples.

Estimated time: 45 hours

Supervised activities:

- Problem solving in class: some problems and clinical cases will be presented, using ICTs, which will be solved either by the teacher or by the student under the teacher's supervision.

Estimated time: 15 hours

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Autonomous activities:

- Information search and processing that will complement the explanations given by the teacher.
- Solving problems that will be commented in class.
- Writing papers, individually or in group, on a variety of topics previously proposed in a bibliographical search.
- Studying and writing outlines, concept maps, and summaries.

Estimated time: 90 hours

ASSESSMENT METHOD

This course unit will be evaluated as follows:


- Theoretical and practical knowledge will be assessed by means of an exam that accounts for 70% of the final mark.
- The written papers will amount to 15% of the final mark.
- Problem solving will amount to 15% of the final mark.

In order to pass this subject, the following conditions must be met:

- A minimum mark of 5 in the final exam.
- A minimum final mark of 5.
- Submitting 80% of the activities to be handed in.

MATERIAL / BASIC RECOMMENDED AND REQUIRED READINGS


Books					
Author	Year	Title	City	Publisher	Description/ comment
	1993	Biomecánica de la marcha humana normal y patológica	Valencia	Instituto de Biomecánica de Valencia.	
Núñez-Samper M, Llanos FA (eds)	2007	Biomecánica, medicina y cirugía del pie	Barcelona	Masson.	2ona edició
Comin M, Prat J y cols	1995	Biomecánica del raquis y sistemas de reparación	Valencia	Instituto de Biomecánica de Valencia.	
Hainaut, K,		Introducción a la Biomecánica	Barcelona	Jims	
Kapandji, I. A.	2001	Cuadernos de fisiología articular. Tom 1: "Miembro superior"	Barcelona	Masson	5a edició
Kapandji, I. A.	2002	Cuadernos de fisiología articular. Tomo 2: Miembro Inferior	Barcelona	Maloine – Editorial Médica Panamericana	5a edició
Kapandji, I. A.	2001	Cuadernos de fisiología articular. Tomo 3: Tronco y Raquis	Barcelona	Maloine – Editorial Médica Panamericana	5a edició

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Le Veau, Barney	1991	Biomecánica del movimiento humano de Williams y Lissner.	Méjico	Trillas	
Miralles Marrero R.C., Miralles Rull, I	2005	Biomecánica clínica del aparato locomotor.	Barcelona	Masson	
Miralles RM.	2000	Biomecánica del aparato locomotor	Barcelona	Masson	
Nardi JV, Combalia AA.(Viladot AV y cols (Eds))	2000	Biomecánica del tendón. En: Lecciones básicas de biomecánica del aparato locomotor.	Barcelona	Springer,	
Nordin M. Victor H. Frankel	2004	Biomecánica básica del sistema músculoesquelético	Madrid	Biomecánica básica del sistema músculoesquelético NORDIN M. Victor H. Frankel (2004). Madrid. McGraw Hill Interamericana.	
Proubasta I, Gil JM, Planell JA.	1997	Fundamentos de Biomecánica y Biomateriales	Barcelona	Ed Ergón S.A.,	
Viladot AV y cols (eds).	2001	Lecciones básicas de biomecánica del aparato locomotor	Barcelona	Springer	
Timoshenko / Gere		Mecanica de materiales		UTEH	Esforços, tensions, elasticitat
Hibbeler		Mecanica Vectorial para Ingenieros: Dinamica		Pearson-Prentice Hall	Dinamica
Schreyer/Ramm/Wagner		Estatica de las estructuras		Blume	Estatica
Steven Vogel		Ancas y Palancas: Mecánica natural y mecánica humana		Metatemas	General biomecànica

Articles						
Author	Title	Publication	Volume	Year	Pages	Description/ comment
Garcia-Elias, M.:	Biomecánica del carpo y sus aplicaciones clínicas. Inestabilidades carpianas	Rehabilitación Física, 3: 19-28, 1992	3	1992	19-28	
		Revista de Biomecánica del Instituto de Biomecánica de Valencia (IBV)				

Web pages			
Title	Description	URL	
	Pàgina del Institut de Biomecànica de València.	http://www.ibv.org/	
	Pàgina de la Societat Ibèrica de Biomecànica i Biomaterials	http://www.prevencionintegral.com/sibb/	
	Pàgina de la Societat Internacional de Biomecànica de l'Esport.	http://www.isbs.org/	
	Pàgina de la Societat Internacional de Biomecànica.	http://isbweb.org/	
Escuela Tecnica Superior de	Pagina de documentacio on line	http://www.aq.upm.es/Departamentos/Estructuras/e96-290/doc/welcome.html	Articles d'estàtica i equilibri,

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Arquitectura de Madrid. Depart. Estructuras de la edificación	de l'assignatura "Mecanica de solidos"		problemes resolts i "applets" de pràctiques.
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GENERAL INFORMATION


Course unit		FUNDAMENTALS OF PHYSIOTHERAPY			
ECTS	6.00	Type of course unit	Compulsory	Academic year	2016-2017
Delivered		SEMESTRALLY	Term / year		1 / 1
Lecturer		Ms GEMMA PAMPALONA Ms NÚRIA SUBIRÀ ROCA Ms MELANIA MASÓ NUÑEZ			
Language of instruction		CATALAN			
Admission requirements		-----			

THE COURSE UNIT WITHIN THE CURRICULUM

- Course contents: Fundamentals of physiotherapy
- This unit provides the student with the theoretical basis and the tools to develop the methods and procedures of physiotherapy.
- The student will know how to take a medical history, make the physiotherapy diagnosis and demonstrate knowledge of the main treatment methods and techniques, fundamental aspects of a good professional practice.

COMPETENCES

Specific Competences	E2. Demonstrate knowledge of the principles, models, techniques and instruments around which physiotherapy is based and articulated. E6. Write and fill in physiotherapy registers. E8. Make the physiotherapy diagnosis according to established norms and internationally recognised validation instruments. E12. Write discharge reports when the objectives have been achieved E15. Work in professional teams, collaborating effectively with the whole multidisciplinary team.
Transversal competences	T7. Team work. T9. Develop critical thinking.
Generic competences	-----

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LEARNING OBJECTIVES

E2. Demonstrate knowledge of the principles, models, techniques and instruments around which physiotherapy is developed and articulated.

Learning outcomes

E2.17. Explain and apply the theoretical bases and the development of physiotherapy methods and procedures

Learning objectives:

E2.17.1 Describe the different methods and techniques used in physiotherapy.

E2.18. Explain the concept, development, and fundamentals of physiotherapy in its scientific and professional aspects.

Learning objectives:

E2.18.1 Define the concepts of physiotherapy and rehabilitation within a scientific framework.

E2.19. Explain the theory of function, disability, and health and their international classification, as well as the physiotherapy intervention models and care practice.

Learning objectives:

E2.19.1. Explain the concept of disability and health and describe the different intervention models in physiotherapy.

E6. Write and fill in physiotherapy registers.

Learning outcomes

E6.1. Enumerate and describe the different elements that make up a physiotherapy register, as stated in the medical history.

Learning objectives:

E6.1.1 Describe the different elements that make up a medical history in physiotherapy.

E8. Make a physiotherapeutic diagnosis following internationally recognised norms and validation instruments.

Learning outcomes

E8.1. Describe the manual and instrumental validation methods and procedures used in physiotherapy.

Learning outcomes

E8.1.1 Describe the different methods used in different assessments, essential to make a diagnosis in physiotherapy

E8.2. Identify the necessary methodology to determine the diagnosis in physiotherapy

Learning objectives:

E8.2.1 Define the concepts of impairment, disability, handicap, and diagnostic hypothesis.

E12. Write discharge reports when the objectives have been achieved.

Learning outcomes

E12.1. Enumerate and describe the different elements that make up a quality physiotherapy register

Learning objectives:

E12.1.1 Identify and describe the elements that make up a physiotherapy report.

E15. Work in professional teams, effectively cooperating with all the members of the multidisciplinary team.


E15.4. Explain the different competences of the professionals in the multidisciplinary team.

Learning objectives:

15.4.1. Identify the different professionals in the multidisciplinary team and describe their competences. Define the role of the physiotherapist within the team.

TRANSVERSAL COMPETENCES

T7. Team work.

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Learning objectives:

T7.1. Actively participate in the team meetings, sharing knowledge, information and experiences.

T9. Develop critical thinking.

Learning objectives:

T9.1. Make own judgments and assessments.

T9.2. Consider other people's judgments.

COURSE CONTENTS

FUNDAMENTALS OF PHYSIOTHERAPY

1. INTRODUCTION I DEFINITIONS
2. SPHERES OF ACTION
3. PHYSIOTHERAPY DIAGNOSIS
4. FUNCTIONAL ASSESSMENT OF THE PATIENT
5. TYPES OF TREATMENT IN PHYSIOTHERAPY
6. GENERAL STUDY OF ARTICULAR MOBILITY
7. ACTIVE MOVEMENTS
8. PASSIVE MOBILITY
9. PATHOLOGIC MOBILITY
10. PHYSIOTHERAPY TECHNIQUES
11. THERAPEUTIC MASSAGE
12. SIMPLE APPARATUS
13. MUSCLE PHYSIOLOGY AND BIOMECHANICS
14. MUSCLE STRENGTHENING
15. STUDY OF POSTURE IN BIPEDESTATION

TEACHING METHOD


CLASSES: The student is provided with the theoretical bases for the patient's functional assessment and the different treatment methods available for each specific diagnosis. 52.5 hours

TUTORIAL SUPERVISION OF PAPERS: 7.5 h

PERSONAL AUTONOMOUS STUDY (EXAM PREPARATION, ORGANIZING NOTES, ETC.): 55 h

RESEARCH AND PAPER PREPARATION: 15 h

PAPER WRITING: 20 h

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ASSESSMENT METHOD

PAPERS: 20% OF THE FINAL MARK


TEST: 80% OF THE FINAL MARK

It is compulsory to pass the written test in order to pass the course.

It is compulsory to participate and hand in the different papers in order to pass the course.

MATERIAL / BASIC RECOMMENDED AND REQUIRED READINGS

BOOKS					
Author	Year	Title	City	Publisher	Description/ comment
Génot, Neiger, Leroy, Pierrot et al.	1987	Kinesiteràpia. Avaluacions. Tècniques passives i actives de l'aparell locomotor. Vol I, II, III, IV	Buenos Aires	Panamericana	
		Enciclopedia medicoquirúrgica: kinesiterapia y reeducación funcional	París	Techniques, SA	
Prentice, WE.		Técnicas de rehabilitación en medicina deportiva		Paidotribo	
Igual, C; Muñoz, E; Aramburu, C.		Fisioterapia general: kinesiterapia		Síntesis	
Calais Germain, B	1995	Anatomia para el movimiento	Barcelona	Los libros de la liebre de Marzo	
Canamasas Ibañez, S	1993	Técnicas manuales: masoterapia	Barcelona	Masson	
Kapandji, I	2001	Cuadernos de fisiología articular	Barcelona	Masson	
Viel E	2001	Diagnóstico fisioterapéutico	Barcelona	Masson	

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GENERAL INFORMATION


Course unit		BASIC PHYSIOTHERAPY OF THE LOCOMOTOR SYSTEM I			
ECTS	6.00	Type of course unit	Compulsory	Academic year	2016-2017
Delivered		SEMESTRALLY	Term / year		1 / 1
Lecturers		Ms ESTHER BERGEL PETIT Ms SÒNIA FERRÉS PUIGDEVALL Mr AGUSTÍN LORENTE LAFUENTE Ms LLUÏSA PORTE CARRERA Ms MIREIA RELATS VILAGELIU			
Language of instruction		CATALAN			
Admission requirements		-----			

THE COURSE UNIT WITHIN THE CURRICULUM

- Course contents: Physiotherapy of the locomotor system.
- This unit, together with *Basic physiotherapy of the locomotor system II*, aims to consolidate the bases of validation and treatment of pathologies related to the locomotor system, developing the student's necessary competence and manual skills.
- When examining the upper limbs, muscle palpation of a living individual, measuring muscle strength and joint mobility and learning the bases of passive manual therapy, as well as being able to communicate using a formal language when giving anatomical descriptions are essential aspects within these studies and this profession. The unit will also provide the students with basic knowledge that will allow them to take part in the training in the second year.

COMPETENCES

Specific competences	E1. Demonstrate knowledge of the morphology, physiology, pathology, and conduct of both healthy and ill people in their natural and social environment. E3. Demonstrate knowledge of the physiotherapy methods, procedures, and actions that lead to clinical therapeutics. E7. Assess the patient's functional state, taking into account physical, psychological, and social aspects. E8. Determine the physiotherapy diagnosis according to established norms and using internationally recognised validation instruments.
Transversal competences	T3. Be able to communicate in a fluent, coherent, and adequate way according to the established norms, both orally and in writing.
Generic competences	G2. Develop strategies of autonomous learning.

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LEARNING OBJECTIVES

E1. Demonstrate knowledge of the morphology, physiology, pathology, and conduct of both healthy and ill people in their natural and social environment.

Learning outcomes:

E1.20. Localize the different muscles by means of surface palpation.

Learning objectives:

E1.20.1. Identify and draw the muscles related to the movements of the articulations of the shoulder, elbow, wrist, and fingers, by means of palpation.

E3. Demonstrate knowledge of the physiotherapy methods, procedures, and actions that lead to clinical therapeutics.

Learning objectives

E3.3. Apply the physiotherapy methods, procedures, and actions in the different clinical specialties that treat conditions of the locomotor system.

Learning objectives:

E3.3.1. Describe the general principles of basic passive mobilization techniques of joints, active-assisted exercises, and massage manoeuvres.

E3.3.2. Apply the basic passive mobilization techniques to the shoulder, elbow, wrist, and fingers.

E3.3.3. Apply active-assisted exercises to the articulations of the shoulder, elbow, wrist, and fingers.

E3.3.4. Apply basic massage manoeuvres to the cervical, thoracic, and lumbar area.

E3.4. Apply specific physiotherapy intervention methods in order to promote a healthy lifestyle, in relation to the locomotor system, by means of health education.

Learning objectives:

E3.4.1. Describe the main alterations related to the pelvic soil.

E3.4.2. Be aware of one's own pelvic soil and know about the necessary measures to prevent any alterations.

E3.4.3. Be aware of one's own body at the level of the pelvis and the foot.

E3.4.4. Integrate the pelvis and foot within one's own body awareness in order to prevent any lesions of the locomotor system.

E3.4.5. Feel new possibilities of movement inside oneself.

E7. Assess the patient's functional state, taking into account physical, psychological, and social aspects.

Learning outcomes:

E7.4. Describe and apply the adequate physiotherapy validation procedures in order to determine the level of affection of the locomotor system and its possible functional impact.

Learning objectives:


E7.4.1. Describe the application principles of articular balance.

E7.4.2. Describe the application principles of muscular balance according to Daniel's scale.

E7.4.3. Measure strength of the muscles in the shoulder, elbow, forearm, wrist, and fingers, using Daniel's scale.

E7.4.4. Measure range of motion of the shoulder, elbow, forearm, wrist, and fingers, using different goniometers.

E7.4.5. Measure length and diameter of different segments of the upper limb, applying anthropometric principles.

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E8. Determine the physiotherapy diagnosis according to established norms and using internationally recognised validation instruments.

Learning outcomes:

E8.3. Establish physiotherapy diagnostic hypotheses studying clinical cases of alterations of the musculoskeletal system.

Learning objectives:

E8.3.1. Define the concepts *impairment*, *disability* and *handicap*.

E8.3.2. Describe the ROM-P method (Complaint, Observation, Measure and Planning).

E8.3.3. Relate the ROM-P method to the contents of the course unit.

T3. Be able to communicate in a fluent, coherent, and adequate way according to the established norms, both orally and in writing.

Learning objectives:

T3.1. Write clear, coherent, and grammatically correct texts.

T3.2. Oral fluency.

T3.3. Communicate using formal language both in anatomical descriptions and in descriptions of physiotherapeutic interventions.


Generic competence:

G2. Develop strategies of autonomous learning.

This competence is worked with the paper on T3 competence "be able to communicate in a fluent, coherent, and adequate way according to the established norms, both orally and in writing".

COURSE CONTENTS

1. Introduction
2. Upper limb: assessment and measures
3. Shoulder: articular balance, muscular balance and mobilizations
4. Elbow/Forearm: articular balance, muscular balance and mobilizations
5. Wrist: articular balance, muscular balance and mobilizations
6. Thumb: articular balance, muscular balance and mobilizations
7. Four last fingers: articular balance, muscular balance and mobilizations
8. Functional/global passive or combined mobilization of the upper limb
10. Massage of the cervical, thoracic and lumbar regions
11. Be aware of one's own body through movement
12. Be aware of one's own pelvic soil

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TEACHING METHOD

DIRECTED ACTIVITIES

- **Theoretical lessons** that will provide the student with the theoretical basis on which the different interventions are based. The lessons will offer visual and computer-based support.
- **Practical lessons** where the teacher will present, with the help of a model, the different techniques. The lessons will offer visual and computer-based support.

Estimated time: 37.5 hours

SUPERVISED ACTIVITIES

- **Practical activities** where the student, under the teacher's supervision, will practise the different techniques.

Estimated time: 52.5 hours

- **Group work.** The student will produce a dossier of pictures taken during the practical sessions.

✓ The members of each group will take pictures of the mobilizations, articular balance, and active-assisted exercises done in class. Each picture will be labelled with the corresponding title.

✓ Periodically there will be a tutorial with each individual group and they will have to present the pictures of all the activities done up to that moment. The teacher will make the necessary corrections.

Estimated time per student: 15 hours

AUTONOMOUS ACTIVITIES

- **Information search and processing** to complete the information given by the teacher. The student will be given a list of basic concepts/topics related to the course unit to be developed and expanded. These exercises will be handed in along the course.

Estimated time: 7.5 hours

- **Autonomous work** of individual study to prepare exams, organise notes/materials, tutorials: individual or in group.

Estimated time: 37.5 hours

ASSESSMENT METHOD

- **Continuous assessment of the topic covered** on some specific days, according to the programme.
 - **Assessing information search on some basic concepts of the course unit:**
 - The different exercises will be assessed according to the course rubric.
- **Assessing the picture dossier:**

- Periodically there will be tutorials in group in order to assess the work done.
- The mark will be the same for all the members of the group.
- **Two partial exams:** one midway through the course and the other one at the end. If passed, the topics covered in them will not be included in the final exam. The student will have the possibility of resitting any of the two partials at the end of the term.
- **Assessment and co-assessment of group work:**
 - On the last day of class, the students will assess and co-assess the members of the group (anonymously). The results will be commented individually.

See table below showing the different percentages of each activity that makes up the final mark:

CONCEPT	PERCENTAGE
CONTINUOUS ASSESSMENT	15%
INFORMATION SEARCH	10%
PICTURE DOSSIER	15%
PARTIAL EXAMS	60%
ATTITUDE AND PARTICIPATION	See norms
ABSENCES	See norms

In order to pass the course, the following conditions have to be met:

- In either partial exam, the student has to get a mark equal to or over 5. If two questions in any partial exam score 0, the exam will be failed.
- The final mark has to be equal to or over 6.
- Compulsory attendance at 80% of classes.

In order to assess attitude and participation, the following aspects will be taken into account.

- Hygiene and appearance.
- Attitude and participation in class.


The student will be warned once if any of these aspects is not observed. If the student continues not observing them, this will be reflected in the final mark.

About absences:


- Non-justified absences will be reflected in the final mark.
- Attendance at 80% of classes is compulsory to be assessed.

MATERIAL / BASIC RECOMMENDED AND REQUIRED READINGS

BOOKS					
Author	Year	Title	City	Publisher	Description /comment
Berryman Reese, N	1999	Muscle and sensory testing	Filadèlfia	W.B. Saunders	
Calais-Germaine, B.	1995	Anatomía para el movimiento	Barcelona	La liebre de Marzo	3ª edición
Cameron, M.H.	1999	Physycal agents in rehabilitation. From research to practice	Filadèlfia	W.B. Saunders	

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Canamasas Ibañez, S	1993	Técnicas manuales: masoterapia	Barcelona	Masson/Salvat Medicina	
Cassar, M.P.	2001	Manual de masaje terapéutico	Madrid	Mc Graw-Hill Interamericana	
Daza, J.	2007	Evaluación clínico-funcional del movimiento corporal humano	Bogotá	Panamericana	
Dufour, M.	2004	Anatomía del aparato locomotor 2. Miembro superior	Barcelona	Masson	
Génot, C.	1987	Kinesioterapia. Toms I i II	Buenos Aires	Médica Panamericana	
Génot, C.	1987	Kinesioterapia. Toms III i IV	Buenos Aires	Médica Panamericana	
Hislop, H. J., Montgomery, J.	2003	Daniels & Worthingham. Técnicas de balance muscular.	Madrid	Saunders; Elsevier	7a edició
Hoffa, Gocht, Strock, Lüdke	1985	Técnica de masaje	Barcelona	Jims SA	
Hoppenfeld, S.	1979	Exploración física de la columna vertebral y las extremidades.	Mèxic	Manual Moderno	18a impressió
Kaltenborn, F.M.	2001	Fisioterapia manual: Extremidades	Madrid	McGraw-Hill; Interamericana	
Kapandji, I. A.	2001	Cuadernos de fisiología articular. Tom 1: "Miembro superior"	Barcelona	Masson	5a edició
Kendall, F.P., Kendall McCreary E	1985	Músculos: Pruebas y funciones	Barcelona	Jims	2a edició
Llusá, M., Merí, A., Ruano, D.	2004	Manual y Atlas Fotográfico de Anatomía del aparato locomotor		Médica Panamericana	
Meadows, J.T.	2000	Diagnóstico diferencial en fisioterapia	Madrid	McGraw-Hill-Interamericana	
Netter, F.H.	1999	Atlas de anatomía humana	New Jersey	Masson	2ª edición
Norkin C.C., White D.J.	2006	Goniometría, evaluación de la movilidad articular	Madrid	Marbán	
Pleguezuelos Cobo, E., et al.	2008	Atlas de puntos clave musculares en la práctica clínica.	Madrid	Médica Panamericana	
Rohen-Yocochi	1994	Atlas fotográfico de anatomía humana	Barcelona	Doyma	3ª edición
Shneider, W.; Dvôrák, J.; Tristchler, T.	1993	Medicina manual. Diagnóstico	Barcelona	Scriba	
Shneider, W.; Dvôrák, J.; Dvôrák, V.; Tristchler, T.	1994	Medicina manual. Terapéutica	Barcelona	Scriba	
Sobotta	2001	Atlas de anatomía humana. Vol. I, II.	Barcelona	Panamericana	21ª edición
Tixa, S.	2000	Atlas de anatomía palpatoria del cuello, tronco y extremidad	Barcelona	Masson	


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		superior. Investigación manual de superficie			
Viel É.	2001	Diagnóstico fisioterápico. Concepción, realización y aplicación en la práctica hospitalaria.	Barcelona	Masson	

Articles						
Author	Title	Publication	Volume	Year	Pages	Description/comment

Web pages			
Title	Description	URL	
ProgramaFball.pdf	Programa de l'assignatura	Intranet de l'assignatura	
AnnexeManualFball.pdf	Annexes al Manual de Fisioteràpia bàsica de l'aparell locomotor I	Intranet de l'assignatura	
NormesFbal.pdf	Normes per a l'assistència a les classes	Intranet de l'assignatura	
BibliografiaFball.pdf	Bibliografia	Intranet de l'assignatura	
FitxaTemps.pdf	Fitxa de temps	Intranet de l'assignatura	
Clasificación Internacional del Funcionamiento, de la Discapacidad y de la Salud		http://whqlibdoc.who.int/publications/2001/9243545426.pdf	

Audiovisual material			
Title	Description		
BMFball.pdf	Fotografies de Balanç Muscular	Localitzable a l'Intranet de l'assignatura	

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GENERAL INFORMATION

Course unit		ANATOMY II			
ECTS	6.00	Type of course unit	Basic education	Academic year	2016-2017
Delivered		SEMESTRALLY	Term / year		2 / 1
Lecturers		DR JOSÉ SIMÓN SÁNCHEZ DIAZ Ms NEUS CIURANA MAYNEGRE Mr. AGUSTIN LORENTE LAFUENTE			
Language of instruction		CATALAN / SPANISH			
Admission requirements		-----			

THE COURSE UNIT WITHIN THE CURRICULUM

- Course contents: Human anatomy.
- This unit aims at consolidating the morphological and functional bases of body organs and systems.
- The knowledge of anatomy is fundamental within the degree and the profession since it consolidates the bases of pathologies and therapies.

COMPETENCES

Specific competences	E1. Demonstrate knowledge of the morphology, physiology, pathology, and conduct of both healthy and ill people in their natural and social environment.
Transversal competences	T1. Analyse and summarise.
Generic competences	G2. Develop strategies of autonomous learning.

LEARNING OBJECTIVES

Competence:

E1. Demonstrate knowledge of the morphology, physiology, pathology, and conduct of both healthy and ill people in their natural and social environment.

Learning outcomes

E1.2. Recognise the configuration of the anatomical structures in a living human being.

E1.2.1. Recognise the structure of the cardiorespiratory system.

E1.2.2. Recognise the structure of the digestive system.


E1.2.3. Recognise the structure of the urinary system.

E1.2.4. Recognise the structure of the male reproductive system.

<p>E1.2.5. Recognise the structure of the female reproductive system.</p> <p>E1.2.6. Recognise the structure of the central nervous system.</p> <p>E1.2.7. Recognise the structure of the visual system.</p> <p>E1.2.8. Recognise the structure of the olfactory system.</p> <p>E1.2.9. Recognise the structure of the vestibulocochlear system.</p> <p>E1.3. Explain the functions of anatomical structures.</p> <p>E1.3.1. Explain the function of the cardiorespiratory system.</p> <p>E1.3.2. Explain the function of the digestive system.</p> <p>E1.3.3. Explain the function of the urinary system.</p> <p>E1.3.4. Explain the function of the male reproductive system.</p> <p>E1.3.5. Explain the function of the female reproductive system.</p> <p>E1.3.6. Explain the function of the central nervous system.</p> <p>E1.3.7. Explain the function of the visual system.</p> <p>E1.3.8. Explain the function of the olfactory system.</p> <p>E1.3.9. Explain the function of the vestibulocochlear system.</p> <p>E1.4. Localise the different anatomical structures by means of surface palpation.</p> <p>E1.4.1. Identify the main osseous details of the trunk and the lower limb by means of palpation.</p> <p>E1.4.2. Identify the main articular structures of the trunk and lower limb by means of surface palpation.</p> <p>E1.4.3. Identify the main vascular and nervous structures of the trunk and lower limb by means of surface palpation.</p> <p>T1. Analyse and summarise.</p> <p>T1.1. Observe and obtain visual information data from anatomical images.</p> <p>G2. Develop strategies of autonomous learning.</p> <p>This is a competence that is developed by working competence “T1. Analyse and summarise”.</p>
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CONTENTS

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| <ol style="list-style-type: none"> 1. Cardiorespiratory system 2. Digestive system 3. Urinary system 4. Male reproductive system 5. Female reproductive system 6. Central nervous system 7. Visual system 8. Olfactory system 9. Vestibulocochlear system |
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TEACHING METHOD

Theoretical presentations. ICT- supported master classes where the main morphological, structural, and functional aspects of the specific anatomical regions will be taught.

Estimated time: 49.5 hours

Practical presentations. The teacher will explain, using a model, how the different palpation techniques are used. ICT-supported sessions.

Estimated time: 7.5 hours

Practice sessions of observation of anatomical dissection pieces

Estimated time: 3 hours

Practical activity The students will practice, among themselves and under the teacher's supervision, the different palpation techniques taught in class.

Estimated time: 7.5 hours

Group work. Producing a dossier on palpatory anatomy.

Estimated time: 10 hours

Autonomous work of individual study to prepare exams, organise notes/materials, tutorials: individually or in group.

Estimated time: 72.5 hours

ASSESSMENT METHOD

- **A final exam:** at the end of the term there will be a 40-question test. 0.05 marks will be subtracted for each wrong answer; unanswered questions will neither subtract nor add marks.
- **A practical final exam:** it will be done together with the final theoretical exam. The student will have to recognise 10 anatomical structures that will be presented in power-point. 0.05 marks will be subtracted for each wrong answer; unanswered questions will neither subtract nor add marks.
- **Continuous assessment of palpation:** on a specific day, to be set depending on the programme's development, the students will be asked to palpate some anatomical structures on a partner.
- **Assessment of the dossier on palpatory anatomy:**
 - Periodically there will be tutorials in groups to assess the work done so far.
 - The mark will be the same for all the member of the group.

See the table below showing the different percentages of each activity that makes up the final mark:


CONCEPT	PERCENTAGE
CONTINUOUS ASSESSMENT OF PALPATION	10%
DOSSIER ON PALPATORY ANATOMY	5%
THEORETICAL FINAL EXAM	75%
PRACTICAL FINAL EXAM	10%

In order to pass the course, the following conditions have to be met:


- The mark in the final exam has to be equal to or over 5.
- The final mark has to be equal to or over 5.

MATERIAL / BASIC RECOMMENDED AND REQUIRED READINGS

Books					
Llusá-Merí-Ruano	2004	Manual y atlas fotográfico de anatomía del aparato locomotor	Madrid	Editorial Médica Panamericana	
Rouvière-Delmas	1999	Anatomía humana descriptiva, topográfica y funcional	Barcelona	Masson	
Moore	1986	Anatomía con orientación clínica	Barcelona	Editorial Médica Panamericana	
Drake-Vogl-Mitchell	2005	Gray. Anatomía para estudiantes.	Madrid	Elsevier.	
Feneis	2000	Nomenclatura anatómica ilustrada	Barcelona	Masson	
Latarjet M, Ruíz Liard A	1988	Anatomía humana	Buenos Aires	Editorial Médica Panamericana	
Netter	2003	Atlas de anatomía humana	Barcelona	Masson	
Orts Llorca	1981	Anatomía Humana	Barcelona	Editorial Científico-Médica	
Platzer	1987	Atlas de anatomía para estudiantes y médicos	Barcelona	Ediciones Omega	
Rohen-Yokochi	1989	Atlas fotográfico de anatomía humana	Barcelona	Ediciones Doyma	
Schünke-Schulte-Schumacher	2005	Prometheus. Texto y atlas de anatomía		Editorial Médica Panamericana	

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Snell	2000	Anatomía clínica para estudiantes de medicina	México DF	McGraw-Hill Interamericana	
Sobotta-Staubesand	1990	Atlas de anatomía humana	Madrid	Editorial Médica Panamericana	
Testut-Latarjet	1977	Tratado de anatomía humana	Barcelona	Salvat Editores	
Tixa, S.	1999	Atlas de anatomía palpatoria de la extremidad inferior. Investigación manual de superficie	Barcelona	Masson	
Tixa, S.	2000	Atlas de anatomía palpatoria del cuello, tronco y extremidad superior. Investigación manual de superficie	Barcelona	Masson	

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GENERAL INFORMATION

Course unit		PHYSIOLOGY II			
ECTS	6.00	Type of course unit	Basic education	Academic year	2016-2017
Delivered		SEMESTRALLY	Term / year		2 / 1
Lecturers		Dr .JOAN CABROL Dr ISHAR DALMAU			
Language of instruction		CATALAN – SPANISH - ENGLISH			

THE COURSE UNIT WITHIN THE CURRICULUM

- Course contents: Physiology**

This course unit tries to provide the student with the basic knowledge of the cell as a functional basic unit, human biochemistry and histology. It also includes the study of the different systems and organs of the human body.

Physiology is the science that studies the healthy human being in order to better understand the physiopathological conditions that lead to disease.

Human physiology provides basic knowledge for health science students since it helps them understand the mechanisms the organism uses to keep its internal equilibrium.

The understanding of the human being as a living being does not only imply understanding the individual functioning of each of the organs and systems but also their different interrelations and controls.

The study of human body physiology also requires acquiring basic knowledge of biochemistry in order to understand cellular and tissular function and structure as well as body metabolism.

Distinguishing the different tissues and their specific characteristics will be basic for the would-be physiotherapist, taking into account that his /her actions are centred on one or more tissues.

All this knowledge of physiology, biochemistry, and histology will be the pillar of the basic knowledge of the human body, which is indispensable in the studies of physiotherapy. Applying all this knowledge to the understanding of body functions in good health, lesion or disease will be a key factor for the professional development of the physiotherapist.

On the other hand, this course unit tries to stimulate the students' critical thinking towards science and its paradigms taking the knowledge of scientific methodology as a base. It also tries to develop the students' ability to summarise information and express themselves in an adequate register.

COMPETENCES

Specific competences	E1. Demonstrate knowledge of the morphology, physiology, pathology, and conduct of both healthy and ill people in their natural and social environment. E2. Demonstrate knowledge of the principles, models, techniques, and instruments around which physiotherapy is developed and articulated.
Transversal competences	T1. Analyse and summarize. T5. Problem solving
Generic competences	G2. Develop strategies of autonomous learning.

LEARNING OBJECTIVES

The objectives of this course unit will allow a complete assessment of the students. Comparing the goals achieved by the students with those they are supposed to have acquired will be the base of the assessment for the teacher and for the students. On the other hand, the fact that the students know these objectives at the beginning of the course is a valuable aspect in order to advise and guide them in their studies, self-evaluate their learning process, and correct or modify any errors. The learning process is fostered if the objectives are clearly set. If that is not the case, the students tend to focus on passing exams.

Specific competence:

E1. Demonstrate knowledge of the morphology, physiology, pathology, and conduct of both healthy and ill people in their natural and social environment.

Learning outcomes:

E1.9. Explain the functioning of the human body in good health in order to have a solid basis to understand the processes that lead to disease.

Cardiac muscle tissue:

- Explain the functions of cardiac muscle.
- Distinguish the three types of muscle tissue.
- Describe the structural characteristics of cardiac muscle.

Specializations of connective tissue:

- Differentiate between tendons and ligaments from a biochemical, structural, and functional perspective.
- Describe the structural and functional characteristics of tendons.
- Identify the different types of cartilage
- Describe the structural and functional characteristics of cartilage.

Histology of the nervous system:

- Explain the function of the nervous system.
- Identify the different components of the nervous system.
- Associate a function to each component of the nervous system.
- Describe the structural characteristics of neurons.
- Identify the function of the main neuronal structures.

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- Differentiate between electrical and chemical transmission of signals.

Epithelial tissue

- Explain the functions of epithelial tissue.
- Describe the structure and function of the different types of epithelium.

Endocrine system

- Explain the hormonal system, its general functions and its interrelation with the nervous system.
- Describe the different endocrine glands, the hormones they secrete and their functions in the organism.
- Correlate the different nervous and endocrine components that take part in the mechanism of neurosecretion.
- Describe thyroid hormones and their relationship with our metabolism, organs and systems.
- Explain the metabolism of calcium and hormones and of the systems that take part in their regulation.
- Acquire wide knowledge of the endocrine pancreas and blood sugar regulation.
- Analyse the functions of hormones of the renal cortex and renal medulla.
- Explain sexual hormones and their relationship with external male and female characters as well as with reproduction.

Excretory system

- Discuss the basic concepts related to the regulation of liquids and electrolytes in the organism.
- Describe the functional structure of the kidney.
- Explain glomerular function.
- Analyse the mechanisms of urine concentration.
- Explain the regulation of volume and osmolarity.
- Discuss the regulation of acid-base balance.

Cardiovascular system


- Describe the morphology and functions of the cardiovascular system.
- Explain the physiology of cardiac muscle and the heart's electrical activity.
- Explain and analyse, with the help of diagrams, all the events in the cardiac cycle: volume, pressure and sounds.
- Analyse the regulation of cardiac function.
- Explain the hemodynamics of the venous and arterial systems.
- Describe microcirculation and its functional regulation.
- Discuss the mechanisms of blood flow control.
- Explain blood pressure regulation.
- Describe other circulations.

Respiratory system

- Explain the organs and muscles involved in respiration.
- Analyse the mechanics of ventilation, pressure and lung volumes.
- Describe pulmonary circulation.
- Explain gas exchange in the lungs.
- Assess gas transport through the blood.
- Discuss the mechanisms of respiratory regulation.

E1.7. Identify the physiological and structural changes that can occur due to a lesion and/or disease in the different tracts and systems.

- Apply the histological knowledge about the cartilage to the context of arthrosis.
- Apply the histological knowledge about epithelial tissue to the changes observed in smokers.
- Identify the diseases associated with alterations in the secretion of growth hormone such as

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acromegaly and dwarfism.

- Recognise the alterations causing dysfunctions in the secretion of the thyroid hormones like hypothyroidism and hyperthyroidism.
- Explain the physiopathological processes caused by the alteration in the metabolism of calcium such as hypocalcaemia and its most severe complication, tetany.
- Identify the alterations in the hypoglycaemic hormones and the onset of diabetes insipidus.
- Identify diabetes, its different types and measures to be taken.
- Discuss the different pathologies that determine an alteration in the secretion of sexual hormones.
- Identify acute respiratory failure.
- Identify cardiac arrhythmia.
- Explain the basic alterations in ECG
- Identify heart failure
- Identify kidney failure using laboratory parameters
- Identify changes in the structure of bone due to alterations of calcaemia

E1.11. Identify a situation of vital risk and know how to provide basic and advanced life support.

- Identify diabetic coma.
- Identify hypoglycaemic coma.
- Describe the characteristics of respiratory failure and the situations that may lead to it.
- Explain the characteristics of heart failure and the different circumstances involved in it.
- Demonstrate capacity for action when faced with either previous situation.
- Know how to detect severe hypotension that leads to tissue hypoperfusion.

Specific competence:

E2. Demonstrate knowledge of the principles, models, techniques, and instruments around which physiotherapy is based and articulated.

Learning outcomes:

E2.1. Explain the theories of cellular biology, taking the cell as a functional unit.

- Identify the main processes of body communication (hormonal, neuroendocrine, endocrine, cell-cell, cell-ECM)
- Define hormone, main types of hormone and body action.
- Relate every type of hormone to its mechanism of action.


E2.2. Explain the biochemical fundamentals of the functioning of the human body.

- Describe the processes in the main metabolic routes.
- Define the final objective of the major processes in the main metabolic routes.

Transversal competence:

T1. Analyse and summarise.

- Extract information from some medication data specifications in relation to the target tissue and its function.
- Write a report on the data specifications of a given medication.
- Find the main ideas in a text or presentation.
- Write an abstract of a scientific article.
- Draw conclusions from a scientific article
- Explain a concept by means of an oral presentation.

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T5. Problem solving

- Identify the altered main parameters of a medical test.
- Devise an action plan to identify the causal factors associated with the alteration of the parameter.
- Formulate explicative hypotheses.

Generic competence:

G2. Develop strategies of autonomous learning

This is a competence that is developed by working competence “T1. Analyse and summarise” and “T5. problem solving”

CONTENTS

1. Specializations of connective tissue
2. Epithelial tissue
3. Skin and annexes
4. Systems of body communication.
5. Endocrine system
6. Excretory system
7. Cardiovascular system
8. Respiratory system
9. Nervous tissue

PRACTICALS:

1. Reading and discussing scientific articles
2. Glycemic curve
3. Blood pressure
4. Lung function tests
5. Biochemistry of urine
6. Actions of hormones and their relationship with the nervous system (classroom practice)

TEACHING METHOD

Master classes:

The students will be provided with the theoretical bases on biochemistry, cell biology, histology, and physiology.


The students will learn by means of deductive procedures so that at the beginning of each unit some questions will be asked that will be answered as the learning process is developed. The aim is for the students themselves to find these answers using the different activities included in this course unit.

The students can ask questions and these will be discussed in class.

ICT-supported master classes account for 30% of the total workload, i.e. 45 hours.

Practical classes

Practical classes will consist of practical presentations by the teacher and practical activities by the students.

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In these practical presentations, the teacher will explain the aim and procedures to be used in each case, which will always be related to the topics and main procedures in physiology. This part will account for 5% of the total workload (7.5 hours).

The students' activities will be supervised and assessed by the teacher.

1. Discussing a scientific article

Before the session, the students will have prepared individually the discussion of an article, which involves reading the article and answering some questions about it.

The students will have 45 minutes to discuss the article and agree on the correct answers to some questions in group. Before the debate, these agreed answers will be presented. Then, these will be presented to the whole class for a collective debate (1.15 hours).

At the end of the session, the teacher will talk about the contents and procedures of the session.

Two 2.5-hour sessions = 5 hours.

2. Glycemic curve

The main goal of this practical is for the student to distinguish between a type 2 diabetes and carbohydrate intolerance.

A 3.5- hour session

3. Blood pressure

The goal of this session is to learn the different procedures to check blood pressure, their limitations and advantages, and the factors that may modify the results and that influence the systems involved in the regulation of blood pressure.

A 1.5-hour session

4. Lung function tests

The aim of this practical is to learn about the methods and instruments used to study pulmonary volume.

A 2-hour session

5. Biochemistry of urine

The aim of this practical is to learn the different basic biochemical parameters in a urine test.


A 1-hour session

6. Actions of hormones and their relationship with the nervous system (classroom practice)

The aims of this practice are:

- Identify the different endocrine glands in our organism.
- Revise each of the hormones secreted by these glands.
- Identify the target tissue for each hormone.
- Understand the functions of hormones on their target tissue.

A 2-hour session

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Group work

The groups will consist of around eight members and will be maintained all along the term. These will also be maintained for the practical sessions.

1. work on data specifications
2. work on a medical test

These represent 10% of the total workload, i.e. 15 hours.

Work on medication data specifications:

Each member of the group will have to write a report on the data specifications of three medications previously agreed upon.

In the report, the active principle and brand name will be mentioned, as well as the following:

- type of molecule
- tissue/s on which it acts
- action at tissular level
- system or organ on which it acts
- action at physiological level.

The information will be obtained from the “Agència Espanyola dels medicaments” (Drug Spanish Agency)

The data specifications will be handed in by the three deadlines set at the beginning of the course.

Work on a medical test

At the end of the term, each group will hand in a paper on different parameters of a medical test.

At the beginning of the course, the students will be given a medical test with some questions they will have to answer.

The group members will have to organise themselves in order to search the necessary information and write the paper. How the different tasks are organised will also be considered part of the paper to be evaluated

Autonomous activities:

Exam preparation, bibliographical search, tutorials, organization of materials / notes, etc.

Information search in different formats both to complement the teacher’s explanations and to prepare the corresponding papers and practical activities.

These activities account for 10% of the total workload, i.e. 15 hours.

Studying, drawing up guidelines, constructing concept maps, writing summaries, making lists of doubts, etc represents 40% of the total workload, i.e. 60 hours.

ASSESSMENT METHOD

The following activities will be assessed:

1. Medication data specifications

The final mark of the medication data specifications will be the average of the three marks obtained for the three specifications.

Each of them will be scored out of 10. The aspects below will be measured as follows:

- 1.25 marks for presentation
- 1.5 marks for expression (using the right register and vocabulary)
- 1.25 marks for each correct answer
- 1 mark for bibliography

The medication data specifications represent 10% of the final mark.

2. Written paper on medical tests

The final mark will be shared among all the members of the group and handing this paper in is compulsory in order to pass the subject.

Those papers that do not meet the specifications given by the teacher or those that are handed in passed the deadline will not be marked.

The papers will be scored out of 10. The aspects below will be measured as follows:

- 1 mark for presentation
- 1 mark for each correct answer
 - 1 mark for bibliography
 - 1 mark for organisation

An answer is correct when:

- The content is correct
- The register is adequate
- The students use their own words

Before the paper is written, the students must state how the group is organised in relation to the different tasks it involves. The mark given for organisation can be negative if a student has not participated at the level required.


The paper accounts for 15% of the final mark.

3. Practical activities

Discussing a scientific article

The mark obtained for the discussion of a scientific article will be based on the following aspects:

- Preparation (25%)
- Discussion and agreement in group (25%)

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- Participation in the collective debate (25%)
- Attendance (25%)

Preparation will be assessed individually.

The discussion and agreement in group will be assessed with the agreed answers. Both the content and the elaboration process will be taken into account.

The participation in the group debate will be assessed taking each student's performance into account and judging it on the following scale:

- 0 = the student does not participate.
- 5 = the student participates but the content is poor.
- 7.5 = the student participates and the content is good.
- 10 = the student participates and the content is very good.

Attendance at minimum 80% of the practicals is compulsory and absences must be justified. Since there are just a couple of sessions, the student is required to attend them both. In case this condition cannot be fulfilled, the student will not get the percentage given for attendance (25%).

The mark obtained in this practical accounts for 50% of the total mark for the practicals.

4. Practical: Glycemic curve, blood pressure, lung function tests, biochemistry of urine, and actions of hormones and their relationship with the nervous system

The following aspects will be assessed:

- Ability to obtain results (60% of the total mark)
- Behaviour, attitude, and motivation during the practical sessions (40% of the total mark)

In order to pass the practicals it is obligatory to attend minimum 80% of the practice classes and absences must be justified. These absences will not be taken as an excuse about not answering questions in the final exam.

These practice sessions represent 50% of the mark given for the practicals.

The mark for the practicals accounts for 15% of the final mark.

5. Final exam

There will be a final exam including 50 5-option multiple choice questions. Each correct answer amounts to 0.20 and 4 wrong answers amount to 0.20.


This represents 60% of the final mark.

General considerations:

In order to pass this course unit, the following conditions must be met:

- In the final exam, the student must get a mark of 5 or over.
- Pass the practicals: attendance and contents
- In the papers, the student must get at least a mark of 4.5

Not fulfilling these conditions will involve not passing the course.


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Assessment table:

Activity to be evaluated	Percentage
Medication data specifications	10 %
Paper on medical test	15 %
Practice sessions	15 %
Exam	60 %

MATERIALS/ BASIC RECOMMENDED AND REQUIRED READINGS

Author	Year	Title	City	Publisher
Wheater, P.R.; Burkitt, H.G.; Stevens, A.; Lowe, J.S	1992	Histopatologia básica		Churchill Livingstone
Yong, b.; Heath, J.W.	2002	Histologia funcional: texto y atlas en color	Madrid	Elsevier Science
Kierszenbaum, A.L.	2002	Histology and cell biology	Massachusetts	Mosby
Gartner, L., Hiatt, J.	2003	Texto i atlas de histología	Mexic	Mc Graw Hill
Junqueira, J.L.; Carneiro, J.	2005	Histología básica	Barcelona	Masson
Stevens, A., Lowe, J.	1993	Texto y atlas de histologia	Madrid	Mosby/ Doyma libros
Albers et al.	1996	Biología molecular de la célula	Barcelona	Omega
Lehninger, Nelson, Cox	1995	Principios de Bioquímica	Barcelona	Omega
Nordin, M.; Frankel, V.	2004	Biomecánica básica del sistema musculoesquelético	Madrid	McGraw-Hill Interamericana
Ganong, William F	2006	Fisiología Médica		Manuel MÓderno
Guyton&Hall	2007	Compendio de Fisiología Médica		Elsevier
Koeppen	2009	Berne y Levi. Fisiología		Elsevier
Fox Stuart	2008	Fisiología Humana		McGraw-Hill
Silverthorn	2008	Fisiología Humana. Un enfoque integrado.		Panamericana
Tresguerres J.	2005	Fisiología Humana		McGraw-Hill
Pocock G.	2005	Fisiología Humana. La base de la Medicina		Masson
Thibodeau	2007	Anatomía y Fisiología		Elsevier
Gal B	2007	Bases de la Fisiología		Tebar Flores
Barret K	2007	Fisiología Gastrointestinal		Interamericana
Casan P	2007	Fisiología y Biología Respiratorias		Ergon
West	2005	Fisiología Respiratoria		Panamericana
Mohrman D	2007	Fisiología Cardiovascular.Lange		McGraw-Hill
Mezquita	2007	Fisiologia dels Sistemes Circulatori, Respiratori i Renal		Universitat de Barcelona

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GENERAL INFORMATION


Course unit		APPLIED PSYCHOSOCIAL SCIENCES			
ECTS	6.00	Type of subject	Basic education	Academic year	2016-2017
Delivered		SEMESTRALLY	Term / year		2 / 1
Lecturers		Mr Eduard Tàpias i Sanglas Ms Rosana Lubelza Roca			
Language of instruction		CATALAN			
Admission requirements		-----			

THE COURSE UNIT WITHIN THE CURRICULUM

- Course contents: psychology.
- This course unit aims to consolidate the bases to understand the human psyche in its social environment, particularly in situations of mental, physical, and psychosomatic disease, drawing up guidelines to establish a good physiotherapist-patient relationship.
- The knowledge of human subjectivity and psychopathology is essential within the degree given the high prevalence of psychological suffering and mental disorders in the population as well as those situations rehabilitation service users are involved in.
- This unit aims to consolidate the bases of diagnosis and treatment of common psychiatric pathologies.

COMPETENCES

Specific competences	E1. Demonstrate knowledge of the morphology, physiology, pathology, and conduct of both healthy and ill people in their natural and social environment. E7. Assess the patient's functional state, taking into account physical, psychological, and social aspects. E13. Provide efficient physiotherapy care by giving patients integrated attention. E15. Work in professional teams, collaborating effectively with the whole multidisciplinary team. E21. Communicate effectively and clearly, both orally and in writing, with users of the health care service as well as with other health professionals.
Transversal competences	T3. Be able to communicate in a fluent, coherent, and adequate way according to the established norms, both orally and in writing.

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	<p>T7. Team work.</p> <p>T8. Develop interpersonal relationships.</p> <p>T9. Develop critical thinking.</p>
Generic competences	<p>G3. Respect diversity and plurality of ideas, people, and situations.</p>

LEARNING OBJECTIVES

E1. Demonstrate knowledge of the morphology, physiology, pathology, and conduct of both healthy and ill people in their natural and social environment.

Learning outcomes:

E1.12. Explain the fundamentals of developmental psychology and the bases of psychosocial development.

Learning objectives:

E1.12.1. Describe the different stages of human subjectivity.

E1.12.2. Define the main features of vital cycles, from birth, adolescence, mature age, old age, and death.

E1.12.3. Describe the different psychical agencies that take part in human motivation and conduct.

E1.12.4. Identify the concept of normality and mental health within a given social environment.

E1.14. Explain the theories of learning applied to health education and long-life learning.

Learning objectives:

E1.14.1. Identify the fundamentals of learning and the willingness to know.

E1.15. Identify the psychological and physical problems derived from gender-based violence.

Learning objectives:

E1.15.1. Identify the signs of psychological and physical abuse.

E1.15.2. Ask adequate questions about situations of violence.

E1.38 Explain basic psychopathological processes.

Learning objectives:

E1.38.1. Define the main features of clinical structures in psychopathology.

E1.38.2. Identify the psychopathological features in the anamnesis and examination of a patient.

E1.38.3. Formulate a diagnostic orientation in the field of psychopathology.

E1.38.4. Distinguish between psychotic and neurotic, organic or functional, pathology.


E1.38.5. Diagnose pathologies such as dementia, mental retardation, autism, schizophrenia, paranoid disorder, depression, anxiety, somatoform disorders, eating disorders, sleep disorders, personality disorders, sexual disorders, and substance-related disorders.

E1.38.6. Identify the different psychopharmacological, psychological and other types of treatments useful in psychiatry.

E7. Assess the patient's functional state, taking into account physical, psychological, and social aspects.

Learning outcomes:

E7.1. Explain the psychological and social factors that influence the individual's state of health/disease, family, and community.

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Learning objectives:

- E7.1.2.** Relate the different variables that play a part in mental stability.
- E7.1.3.** Describe the functions and roles in a family group and their part in states of disease.
- E7.1.4.** Identify the community resources that facilitate social bonds.

E13. Provide efficient physiotherapy care by giving patients integrated attention.

Learning outcomes:

E13.1. Identify the psychical impact of traumatisms and physical diseases.

Learning objectives:

- E13.1.1.** Identify the different stages of the psychical process in physical rehabilitation.
- E13.1.2.** Relate the most adequate therapeutic attitude to every stage of the process.
- E13.1.3.** Describe how to act in mourning and deal with its complications.
- E13.1.4.** Detect a mental pathology in patients with traumatological, rheumatological, or degenerative conditions.

E13.2. Explain the psychological aspects of the physiotherapy-patient relationship.

Learning objectives:

- E13.2.1.** Define the basic characteristics to establish a confidence-based relationship.
- E13.2.2.** Define the most adequate therapeutic attitudes according to the patient's psychopathology, problems and attitude.
- E13.2.3.** Identify the main aspects of transference phenomena.

E13.3. Explain the psychological determinants affecting the biological organism of patients with psychosomatic alterations.

Learning objectives:

- E13.3.1.** Identify the psychopathological features in the anamnesis and examination of a patient.
- E13.3.2.** Define the guidelines to be followed in the physiotherapy treatment of a psychosomatic patient including relevant psychosocial aspects.

E15. Work in professional teams, collaborating effectively with the whole multidisciplinary team.

Learning outcomes:

E15.1. Identify the factors that determine group dynamics.

Learning objectives:

- E15.1.1.** Differentiate between group, team, and institution.
- E15.1.2.** Lay down adequate conditions for team work.
- E15.1.3.** Differentiate between therapeutic team and iatrogenic team.
- E15.1.4.** Identify the team's defence mechanisms.
- E15.1.5.** Identify the leader's role in team dynamics.

E21. Communicate effectively and clearly, both orally and in writing, with users of the health care service as well as with other health professionals.

Learning outcomes:

E21.1. Determine and explain the psychological aspects of the therapist-patient relationship.

Learning objectives:

- E21.1.1.** Identify the main aspects of the listening attitude.
- E21.1.2.** Identify the main aspects of the attitude of presence.
- E21.1.3.** Identify the main aspects of the attitude of setting limits.
- E21.1.4.** Identify the main aspects of conflict resolution.
- E21.1.5.** Develop an adequate professional-patient relationship.
- E21.1.6.** Establish an atmosphere of confidence during the clinical examination of the patient.
- E21.1.7.** Develop empathetic abilities.
- E21.1.8.** Use the basic standards of a relationship with psychiatric patients.
- E21.1.9.** Identify the role of a physiotherapist in a psychiatric clinic.

E21.2. Explain and apply the theories of communication and interpersonal relationships.

Learning objectives:

E21.2.1 Identify the basic aspects of verbal and body language.

T3. Be able to communicate in a fluent, coherent, and adequate way according to the established norms, both orally and in writing.

Learning objectives:

T3.1. Communicate effectively, adequately, and comprehensibly with the patient/user, his/her family and the members of the interdisciplinary team.

T7. Team work.

Learning objectives:

T7.1. Differentiate between group, team, and institution.

T7.2. Lay down adequate conditions for team work.

T7.3. Differentiate between therapeutic team and iatrogenic team.

T7.4. Identify the team's defence mechanisms.

T7.5. Take into account other people's point of view.

T8. Develop interpersonal relationships.

Learning objectives:

T8.1. Identify the main aspects of the listening attitude.

T8.2. Identify the main aspects of the attitude of setting limits.

T8.3. Identify the main aspects of conflict resolution.

T8.4. Develop empathetic abilities.

T9. Develop critical thinking.


Learning objectives:

T9.1. Active participation in debates.

G3. Respect diversity and plurality of ideas, people, and situations.

Learning objectives:

G3.1. Assimilate the diversity implicit in the human condition recognising one's own prejudices.

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CONTENTS

PSYCHOLOGY

1. The human psyche. Basic concepts.
2. The constitution of the individual. Developmental psychology and vital cycles.
3. Individual and family in modern society.
4. Different orientations and treatments in the clinical field.
5. Clinical structures in psychopathology. The physiotherapist-patient relationship.
6. Psychosomatics: disorders and methods of intervention.
7. Physical trauma and disability: psychological and social consequences.
8. Case assessment and orientation.

PSYCHIATRY

1. General introduction
2. Pathologies
3. Therapeutic action

TEACHING METHOD

DIRECTED ACTIVITIES

- **Theoretical lessons** with visual and computer-based support. Time: 45 hours

SUPERVISED ACTIVITIES


- **Individual work** on clinical cases:
 - Proposed by the teacher.
 - Interview-assessment of a user of the health service.
- **Group work:**
 - Cinema forum: illustrating the theoretical contents covered in class, debate and group work.
 - Readings.

Time: 15 hours

AUTONOMOUS ACTIVITIES

- Readings related to the theoretical lessons.
- Study and preparation of practical cases. Group work. Face-to-face or online tutorials.
- Group work. Face-to face or online project.
- Personal study

Time: 90 hours

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ASSESSMENT METHOD

Continuous assessment: the student will fill and hand in the questionnaire of:

- the clinical cases worked and discusses in group and in class.
- the interview with a user of the health service.

The mark will be out of 10, taking into account aspects such as meeting deadlines, data organisation and presentation.

Assessment of group work on two readings and cinema forums: the mark will be out of 10, taking into account aspects such as content quality, originality, research, presentation, and critical thinking.

Final exam: 25 multiple-choice questions. Wrong answers will amount to -0.25.

FINAL MARK:


- Final exam: 75%
- Continuous assessment: 10%
- Group work: 15%

In order to pass this course unit, the following conditions must be met:

- In the final exam, the student must get a mark of 5 or over.
- The final mark must be 6 or over.


MATERIALS / BASIC RECOMMENDED AND REQUIRED READINGS

Books					
Author	Year	Title	City	Publisher	Description/ comment
Ey, H		Tratado de Psiquiatría		Toray Masson	Llibre de text
Arranz Freijo, E.	1998	<u>Modelos del desarrollo psicológico humano</u>		Servicio editorial Universidad del Pais Vasco	Llibre de text pràctic
Millieri, R	2003	<u>La aventura de ser niño</u>		Biblioteca Nueva	Llibre de text pràctic
Bernard, M.	1980	<u>El cuerpo</u>		Paidós	Llibre de text pràctic
Luban-Plozza, B. i altres	1997	<u>El enfermo psicósomático en la práctica</u>		Herder	Llibre de text pràctic
Mardarás, E.	1990	<u>Psicoprofilaxis quirúrgica</u>		Rol	Llibre de text pràctic
Beck-Gemheim, E	2003	<u>La reinención de la familia</u>		Paidós	Llibre de text pràctic
Sinelnikoff, N	1999	<u>Las psicoterapias. Inventario crítico</u>		Herder	Llibre de text pràctic
Pàmies, Teresa		<u>L'aventura d'envellir</u>		Empuries	Assaig sobre la vellesa
Jamis, Rauda		<u>Frida Kahlo</u>		Circe	Sobre procés terapèutic

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					històric. Novela
Frame, Janet		Un ángel en mi mesa		Seix Barral	Personatge amb psicopatologia. Novela
Greenberg, Michael		Hacia el amanecer,		Seix Barral	Personatge amb psicopatologia. Novela
Oller, Narcís		La Bogeria		Classics Catalans Biblioteca Hermes	Personatge amb psicopatologia. Novela
Rubinfeld, Jed		La Interpretación de un asesinato,		Anagrama	Intriga i psicopatologia. Novela
Soler, Jordi		La última hora de l'últim dia		La Magrana	Personatge amb psicopatologia. Novela
Yalom, Irvin D.		El día que Nietzsche lloró		Destino	Sobre procés terapèutic històric. Novela

Audiovisual material			
Title	Description		
EL HOMBRE QUE MIRABA AL SUDESTE	Fiction about psychiatry		
UNA ALTRA MANERA DE CURAR	Documentary on etnopsychiatry		
SHINE	Fiction about mental disorders and artistic creation		
EL HIJO DE LA NOVIA	Fiction about Alzheimer's		
ELTRUCO DEL MANCO	Fiction about psychopathies and addictions		


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GENERAL INFORMATION

Course unit		BIostatistics and Methodology			
ECTS	6.00	Type of course unit	Basic education	Academic year	2016-2017
Delivered		SEMESTRALLY	Term / year		2 / 1
Lecturers		Dr Josep Sánchez Aldeguer Sra. Clara Florensa Dr Francesc Boixader Estevez			
Language of instruction		CATALAN / SPANISH			
Admission requirements		-----			

THE COURSE UNIT WITHIN THE CURRICULUM

- Course contents: Statistics
- Knowledge of the scientific method is basic for research, professional practice, and for the development of physiotherapists now and in the future. This course unit will present the scientific method currently followed by biological sciences. The student will develop the reasoning and practical methodology of evidence-based physiotherapy.
- The student will have knowledge of the basic concepts of evidence-based medicine and epidemiology applied to physiotherapy, of the basic notions of the different types of scientific studies, and of the possibilities and importance of carrying out epidemiological studies in the field of physiotherapy.
- The student will have knowledge of the basic aspects and tools to search for information and do research projects. The student will learn how to formulate hypotheses and establish goals, research projects, bibliographical search, and know the structure of a scientific paper.
- A fundamental part of the current scientific method has to do with data statistical analysis. Therefore, the knowledge of basic mathematical and conceptual techniques for the analysis of statistical data is essential in the basic and continuing education of a physiotherapist in the 21st century. It is, therefore, fundamental that the student has basic knowledge of descriptive statistics and inferential statistics so that he/she can:
 - Critically read scientific articles and publications.
 - Understand the statistic data found in specialised magazines and books.
 - Summarise, interpret, and represent statistical one or two-variable series.
 - Manage probability calculus and its application in diagnostic tests.
 - Know and use some probability distributions as well as their different approximations.
 - Know and apply estimation techniques, hypothesis and linear regression and correlation contrasts.
 - Organize and present the results of a statistical study.

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COMPETENCES

Specific competences	E2. Demonstrate knowledge of the principles, models, techniques, and instruments around which physiotherapy is developed and articulated.
Transversal competences	T1. Analyse and summarize. T2. Organize and plan. T3. Be able to communicate in a fluent, coherent, and adequate way according to the established norms, both orally and in writing. T4. Manage information systems. T13. Show a strategic and flexible learning attitude.
Generic competences	G4. Formulate innovative and competitive proposals in the field of research and professional activity.

LEARNING OBJECTIVES

Competence

E2. Demonstrate knowledge of the principles, models, techniques, and instruments around which physiotherapy is developed and articulated.

Learning outcomes

E2.12. Use correctly the data found in reliable information sources, in the field of health sciences.

Learning objectives

- E2.12.1** Understand the importance of a theoretical framework in research on health sciences.
- E2.12.2** Search bibliography in the most relevant sources in the field of health sciences.
- E2.12.3** Revise the bibliography in health sciences.
- E2.12.4** Find in the bibliography all the information relevant for the set goals.
- E2.12.5** Review the texts gathered in the bibliographic search in different health sciences databases, following the methods of critical reading.

Learning outcomes

E2.13. Apply statistical techniques to our professional work in order to better understand the results obtained in our everyday practice.

Learning objectives

- E2.13.1** Define the fundamental concepts of statistics.
- E2.13.2** Identify the different types of variables used in statistics, build and define the statistical variables starting from some given observations.
- E2.13.3** Identify and interpret the basic measures of central tendency, dispersion and form.
- E2.13.4** Do a simple statistical study using some data previously gathered, ordered and synthesised.
- E2.13.5** Solve simple probability problems.
- E2.13.6** Understand the properties of normal distribution and apply the binomial, Poisson and normal tables.
- E2.13.7** Interpret contingency tables and the relations between two variables and find a linear function between them.
- E2.13.8** Predict the results of a variable in a subject, knowing the value of another variable linearly related in the same subject.
- E2.13.9** Interpret the main types of graphs of statistical representation.
- E2.13.10** Interpret the most common probability functions.
- E2.13.11** Judge causal relations between variables.

E2.13.12 Distinguish the different types of statistical hypotheses, analyse confidence intervals and the validity of the hypotheses through a statistical hypothesis test.

Learning outcomes

E2.14. Identify and use the bases and methods to do investigation tasks in the field of physiotherapy.

Learning objectives

E2.14.1 Understand that current physiotherapy is based on scientific evidence.

E2.14.2 Find and revise physiotherapy-specific scientific bibliographical sources.

E2.14.3 Analyse documents found in physiotherapy-specific bibliographical sources.

E2.14.4 Read critically the material from the physiotherapy-specific bibliographical search.

E2.14.5 Elaborate the theoretical framework from the results obtained in the bibliographical search.

E2.14.6 Set out the objectives of scientific research on a physiotherapy-related topic.

E2.14.7 Choose most appropriate type of scientific research according to the set objectives.

E2.14.8 Consider the process necessary to reach the set objectives in scientific research.

E2.14.9 Design, in groups of 3 to 5 students, a scientific research protocol project on a physiotherapy-related topic.

Competence

T1. Analyse and synthesise.

Learning objectives

T1.1 Analyse the material from the bibliographical search.

T1.2 Outline the basic elements in a text.

T1.3 Observe and identify the data from a scientific publication.

T1.4 Write the abstract of a scientific article.

T1.5 Summarize the material from the bibliographical research.

T1.6 Write bibliography cards

T1.7 Establish the appropriate research questions.

T1.8 Elaborate the theoretical framework of a protocol project.

Competence

T2. Organizing and planning.

Learning objectives

T2.1 Define the typology of scientific research according to the set goals.

T2.2 Order logically ideas, actions, topics,... and relate them to each other.

T2.3 Decide how to integrate processes and procedures with the means available, and plan their duration.

T2.4 Program the process to be followed to reach the goals set in scientific research.

T2.5 Logical planning on how to adapt one's own means and time to priorities.

T2.6 Design a scientific study protocol project on a physiotherapy-related topic.

T2.7 Meet the deadlines.

Competence

T3. Be able to communicate in a fluent, coherent, and adequate way according to the established norms, both orally and in writing.

Learning objectives

T3.1 Write clear, coherent, and grammatically correct texts.

T3.2 Proper use of the specific terminology of health sciences.

T3.3 Giving public speeches.

T3.4 Giving an oral presentation of the main lines of the research project, based on the materials of the bibliographical research and the scientific methodology applied to physiotherapy.

T3.5 Present the research protocol project in writing using appropriate scientific language, both in structure and vocabulary.

Competence

T4. Manage information systems.

Learning Objectives

T4.1 Access information and documentation sources in the field of health sciences.

T4.2 Use efficiently the relevant databases in health sciences.

T4.3 Use ICTs efficiently and effectively.

T4.2 Find useful information for the stated goals in scientific databases.

Competence

T13. Show a strategic and flexible learning attitude.

Learning objectives

T13.1 Put into practice the focus, methods, and experiences proposed by the teacher.

T13.2 Share and assume the learning goals proposed by the teacher.

T13.3 Ask questions in order to learn and clarify doubts.

T13.4 Acknowledge the relevance of other ways of thinking different from one's own.

T13.5 Raise alternatives of scientific studies adequate for each of the set goals.

Competence

G4. Put forward innovative and competitive proposals in the field of research and professional experience.


Learning objectives

G4.1 Choose those objectives that have not been thoroughly evaluated by the physiotherapy-based literature as the main goal of the research protocol project to be submitted.

G4.2 Recognise the limitations and weak points in the existing theoretical framework of the published scientific bibliography.

G4.3 Consider new ways of having things done in physiotherapy in relation to weak points of knowledge.

G4.4 Find new methods and procedures to have things done in physiotherapy in relation to weak points of knowledge.

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COURSE CONTENTS

Module I: Introduction to quantitative and qualitative research

- Chapter 1: The scientific method
- Chapter 2: Introduction to statistics
- Chapter 3: Causality and Validity
- Chapter 4: Introduction to qualitative and quantitative research

Module II: Documental and lexicographical sources


- Chapter 1: Medical documents
- Chapter 2: Bibliography
- Chapter 3: Bibliographic analysis
- Chapter 4: Scientific language

Module III: Introduction to Biostatistics

- Chapter 1: Probability
- Chapter 2: basic statistical measures
- Chapter 3: Distributions
- Chapter 4: Statistical inference

TEACHING METHOD

- **Directed activities (35%)**
 - ITC-supported theoretical lessons that will provide the student with the theoretical basis on which the theoretical knowledge of the subject is based.
 - ITC-supported presentations by the teacher on statistical problems, as well as exercises on hypothesis formulation and bibliographical search.
 - Time: 52.5 hours.
 - Distribution:
 - Directed activities Module I: 16.5 hours.
 - Directed activities Module II: 16.5 hours.
 - Directed activities Module III: 19.5 hours.
- **Supervised activities (10%)**
 - Problem solving in class: statistical problems, as well as exercises on hypothesis formulation and bibliographical search. Individual or group work under the teacher's supervision.
 - Time: 15 hours.
 - Distribution:
 - Supervised activities Module I: 6 hours.
 - Supervised activities Module II: 6 hours.
 - Supervised activities Module III: 3 hours.
- **Autonomous activities (55%)**
 - Problem solving to be discussed in class later on.
 - Writing a paper on a physiotherapy-related topic that will incorporate all the knowledge acquired.
 - Studying and writing outlines, concept maps, and summaries.
 - Time: 82.5 hours.

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ASSESSMENT METHOD

1. Exam:

Both types of knowledge, theoretical and practical, will be assessed by means of an exam that accounts for 60% of the final mark. The exam is made up of three parts:

- Multiple choice test with 30 items (50% of the exam mark)*, 15 questions from Module I and 15 questions from Module II.
Time: 40 minutes.
- Text analysis and comprehension (20% of the exam mark)*.
Time: 20 minutes.
- Solving 3 statistical problems (30% of the exam mark)*.
Time: 60 minutes.

*For these percentages to be applied, it is necessary that the student gets a minimum mark of 4 in each of the exam parts.


2. The final paper will account for 25% of the total final mark for each of the group members. The paper must be handed in at least two weeks before the date of the exam. The following will be assessed:

- The elaboration of the theoretical framework and content cards. (40% of the paper mark).
- The physiotherapy-based research protocol project, the objective epigraphs, design of the study, variables, data gathering form and general impression of the project. (40% of the paper mark).
- The students in each group will self-evaluate their work in the group. (5% of the paper mark).
- The students of each group will anonymously assess the other members of the group in order to evaluate their level of implication and quality in the group. (15% of the paper mark).

3. The exercises that are part of the continuous assessment, oral presentations, and tasks done in class will amount to 15% of the total mark.


In order to pass this subject, the following conditions must be met:

1. Those students that do not hand in the final paper two weeks before the date of the exam will be considered "No Presentat".
2. Those students that do not do one of the three parts of the final exam will be considered "No Presentat".
3. A minimum mark of 4.8 is required in both, the final exam and the final paper.
4. Those students that do not do the activities in the continuous assessment will need an average mark of 6.0, calculated between the final exam and the paper, to pass the subject.

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MATERIAL / BASIC RECOMMENDED AND REQUIRED READINGS


BOOKS					
Author	Year	Title	City	Publisher	Description/ comment
Frutos J., Arroyo M.A.	2006	Salud Pública y Epidemiología.	Madrid	Ed. Díaz de Santos	
Piédrola Gil G et al.	2002	Medicina Preventiva y Salud Pública. 10ª ed.	Barcelona	ed. Masson	
León OG, Montero I.	1993	Diseño de investigaciones. Introducción a la lógica de la investigación en psicología y educación.	Madrid	McGraw Hill,	
Schwartz D.	1985	Métodos estadísticos para médicos y biólogos.	Barcelona	Herder,	
Laporte JR.	1993	Principios básicos de investigación clínica.	Madrid	Zéneca	
Hulley SB, Cummings S.	1993	Diseño de la investigación clínica.	Barcelona	Doyma	
Desantes-Guanter JM, López Yepes J.	1996	Teoría y técnica de la investigación científica.	Madrid	Síntesis	
Departamento de Medicina y Psiquiatría (Universidad de Alicante).	1995	Tratado de epidemiología clínica.	Madrid	Du Phont Pharma	
Rebagliato M, Ruiz I, Arranz M.	1996	Metodología de la investigación en epidemiología	Barcelona	Díaz de Santos	
Bakke OM, Carné X, García Alonso F.	1994	Ensayos clínicos con medicamentos	Barcelona	Doyma	
Ahlbom A, Norell S.	1992	Fundamentos de epidemiología. 3ª ed.	Madrid	Siglo Veintiuno	
Álvarez Cáceres R.	1995	El método científico en las ciencias de la salud.	Madrid	Díaz de Santos	
Matthews DE, Farewell VT.	1990	Estadística médica. Aplicación e interpretación. 2ª ed.	Barcelona	Salvat	
Sánchez Aldegue J, Frutos Martínez, F.	2000	Aspectos generales de la investigación para médicos de residencias. En Reuss JM. Medicina Geriátrica en residencias	Madrid	Edimsa	
Daniel, W.W.	2002	Bioestadística. Base para el análisis de las ciencias de la salud. 4ª ed.	Mexico	Limusa Wiley	
Milton, J. S.	2007	Estadística para biología y ciencias de la salud. 3ª ed. ampliada	Madrid	Interamericana . McGraw-Hill	
Sentis, J. ; Pardell, H. ; Cobo, E. ; Canela, J.	2003	Manual de bioestadística. 3ª ed.	Barcelona	Masson	
Armitage, P. ; Berry, G.	1997	Estadística para la investigación biomédica	Madrid	Harcourt Brace	
Viedma, J. A.	1976	Bioestadística: Métodos estadísticos en medicina y biología		Ed. del autor	
Remington y Schork.	1979	Estadística Biométrica y Sanitaria	Madrid	Prentice/Hall International	
Sentís J, Canela J.	1994	Bioestadística	Barcelona	Salvat. Colección	

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				Licenciatura	
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Articles					
Author	Year	Title	City	Publisher	Description/ comment
Cabezali Sánchez JM, Sánchez Aldeguer J.	1997	El cuestionario: bases metodológicas y su utilización en Fisioterapia, para lograr una mayor calidad asistencial.	Fisioterapia 1997;19(2): 97-103		

Web pages			
Title	Description	URL	
Azzimonti Renzo, J.C	Bioestadística aplicada a Bioquímica y Farmacia	http://www.biometria.freesevers.com/texto.htm	
HyperStat Online	An Introductory Statistics Book and Online Tutorial for Help in Statistics Courses	http://davidmlane.com/hyperstat/	
Fundación Faustino Orbegozo Eizaguirre	Curvas y Tablas de Crecimiento	http://www.aepap.org/pdf/f_orbegozo_04.pdf	
	Metodología de la Investigación	http://www.fisterra.com/mbe/investiga/index.asp	
	Programas estadísticos para análisis de datos en Internet	http://www.fisterra.com/mbe/investiga/program_internet/program_internet.asp	
Universidad de Málaga	Bioestadística: métodos y aplicaciones	http://ftp.medprev.uma.es/libro/referencia.htm	
Ramón y Cajal	Material docente de la Unidad de Bioestadística Clínica	http://www.hrc.es/bioest/M_docente.html	
Páginas sobre bioestadística (SEH-LELHA)		http://www.seh-lelha.org/stat1.htm	
A New View of Statistics		http://www.sportsci.org/resource/stats/index.html	
The Little Handbook of Statistical Practice		http://www.tufts.edu/~gdallal/LHSP.HTM	
Statistical Books, Manuals and Journals		http://statpages.org/javasta3.html	

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GENERAL INFORMATION


Course unit		BASIC PHYSIOTHERAPY OF THE LOCOMOTOR SYSTEM II			
ECTS	6.00	Type of course unit	Compulsory	Academic year	2016-2017
Delivered		SEMESTRALLY	Term / year		2 / 1
Lecturers		Ms NOELIA SERRANO DOMÍNGUEZ Ms SÒNIA FERRÉS PUIGDEVALL Mr AGUSTÍN LORENTE LAFUENTE Ms NÚRIA PASTALLE BURRULL Ms LLUÏSA PORTE CARRERA			
Language of instruction		CATALAN			
Admission requirements		-----			

THE COURSE UNIT WITHIN THE CURRICULUM

- Course contents: Physiotherapy of the locomotor system.
- This unit, together with *Basic physiotherapy of the locomotor system I*, aims to consolidate the bases of validation and treatment of pathologies related to the locomotor system, developing the student's necessary competence and manual skills.
- When examining the vertebral column, the trunk, and lower limbs, muscle palpation of a living individual, measuring muscle strength and joint mobility and learning the bases of passive manual therapy, as well as being able to communicate using a formal language when giving anatomical descriptions are essential aspects within these studies and this profession. The unit will also provide the students with basic knowledge that will allow them to take part in the training in the second year.

COMPETENCES

Specific competences	E1. Demonstrate knowledge of the morphology, physiology, pathology, and conduct of both healthy and ill people in their natural and social environment. E3. Demonstrate knowledge of the physiotherapy methods, procedures, and actions that lead to clinical therapeutics. E7. Assess the patient's functional state, taking into account physical, psychological, and social aspects. E8. Determine the physiotherapy diagnosis according to established norms and using internationally recognised validation instruments.
Transversal competences	T3. Be able to communicate in a fluent, coherent, and adequate way according to the established norms, both orally and in writing.

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Generic competences	G2. Develop strategies of autonomous learning.
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LEARNING OBJECTIVES

E1. Demonstrate knowledge of the morphology, physiology, pathology, and conduct of both healthy and ill people in their natural and social environment.

Learning outcomes:

E1.20. Localize the different muscles by means of surface palpation.

Learning objectives:

E1.20.1. Identify and draw the muscles related to the movements of the articulations of the vertebral column and trunk, articulations of the hip, knee, ankle, and foot by means of palpation.

E1.20.2. Identify the location of facial muscles by means of observation.

E1.21. Describe and analyse human movement.

Learning objectives:

E1.21.1. Basic analysis of movement in everyday activities, identifying the anatomical structures involved.

E3. Demonstrate knowledge of the physiotherapy methods, procedures, and actions that lead to clinical therapeutics.

Learning objectives

E3.3. Apply the physiotherapy methods, procedures, and actions in the different clinical specialties that treat conditions of the locomotor system.

Learning objectives:

E3.3.1. Apply the basic passive mobilization techniques to the articulations of the vertebral column, trunk, hip, knee, ankle, and foot.

E3.3.2. Apply active-assisted exercises to the articulations of the hip and knee.

E3.3.2. Apply basic massage manoeuvres to the upper and lower limbs.

E3.4. Apply specific physiotherapy intervention methods in order to promote a healthy lifestyle, in relation to the locomotor system, by means of health education.

Learning objectives:

E3.4.1. Be aware of one's own body at the level of the shoulder and vertebral column.

E3.4.2. Integrate the shoulder and vertebral column to one's own body awareness to prevent lesions of the locomotor system.

E3.4.3. Feel new possibilities of movement inside oneself.

E3.4.4. Apply basic weight transfer manoeuvres for the patient, work on safe postures and movements both for the carer and the patient, following the principles of postural hygiene and ergonomics.

E7. Assess the patient's functional state, taking into account physical, psychological, and social aspects.


Learning outcomes:

E7.4. Describe and apply the adequate physiotherapy validation procedures in order to determine the level of affection of the locomotor system and its possible functional impact.

Learning objectives:

E7.4.1. Measure strength of the muscles related to the movements of the vertebral column and trunk, articulations of the hip, knee, ankle, and foot using Daniel's scale.

E7.4.2. Measure range of motion of the vertebral column and articulations of the hip, knee, ankle, and foot using different goniometers.

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E7.4.3. Measure length and diameter of different segments of the lower limb, applying anthropometric principles.

E7.4.4. Assess the function of facial muscles observing the symmetry of gestures.

E7.4.5. Use the main consensual assessment scales to evaluate the patient's autonomy in everyday activities, balance and gait, pain and function of the articulations of the shoulder, hip and knee.

E8. Determine the physiotherapy diagnosis according to established norms and using internationally recognised validation instruments.

Learning outcomes:

E8.3. Establish physiotherapy diagnostic hypotheses studying clinical cases of alterations of the musculoskeletal system.

Learning objectives:

E8.3.1. Identify and distinguish impairments, disabilities and handicaps through clinical cases.

T3. Be able to communicate in a fluent, coherent, and adequate way according to the established norms, both orally and in writing.

Learning objectives:

T3.1. Write clear, coherent, and grammatically correct texts.

T3.2. Oral fluency.

T3.3. Communicate using formal language both in anatomical descriptions and in descriptions of physiotherapeutic interventions.


Generic competence:

G2. Develop strategies of autonomous learning.

This competence is worked with the paper on T3 competence "be able to communicate in a fluent, coherent, and adequate way according to the established norms, both orally and in writing".

COURSE CONTENTS

1. Cervical spine / neck: articular balance, muscular balance and mobilizations
2. Thoracic spine and trunk: articular balance, muscular balance and mobilizations
3. Lumbar spine: articular balance, muscular balance and mobilizations
4. Measure lower limbs
5. Hip and Pelvis: articular balance, muscular balance and mobilizations
6. Knee: articular balance, muscular balance and mobilizations
7. Ankle and foot: articular balance, muscular balance and mobilizations
8. Facial muscles: location and function of the main facial muscles
9. Massage of the upper and lower limb
10. Basic weight transfer manoeuvres by the patient
11. Introduction to consensual assessment scales
12. Self-awareness of body movements: work on the shoulder and vertebral column

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TEACHING METHOD

DIRECTED ACTIVITIES

- **Theoretical lessons** that will provide the student with the theoretical basis on which the different interventions are based. The lessons will offer visual and computer-based support.
- **Practical lessons** where the teacher will present, with the help of a model, the different techniques. The lessons will offer visual and computer-based support.
- **Exercises on physiotherapy diagnoses.** The student will be presented with the written descriptions of several clinical cases and he/she will be asked to make a diagnosis identifying the deficiencies, disabilities and handicaps in each case and present the results in writing.

Estimated time: 37.5 hours

SUPERVISED ACTIVITIES

- **Practical activities** where the student, under the teacher's supervision, will practise the different techniques.

Estimated time: 52.5 hours

- **Group work.** The student will produce a dossier of pictures taken during the practical sessions.
 - ✓ The members of each group will take pictures of the mobilizations, articular balance, and active-assisted exercises done in class. Each picture will be labelled with the corresponding title.
 - ✓ Periodically there will be a tutorial with each individual group and they will have to present the pictures of all the activities done up to that moment. The teacher will make the necessary corrections.

Estimated time per student: 15 hours

AUTONOMOUS ACTIVITIES

- **Information search** to analyse a specific movement in a common everyday activity or when doing sport performed with the upper limb.

Estimated time: 7.5 hours

- **Autonomous work** of individual study to prepare exams, organise notes/materials, tutorials: individually or in group.

Estimated time: 37.5 hours

ASSESSMENT METHOD

- **Continuous assessment of the topic covered** on some specific days, according to the programme.
- **Assessment of movement analysis:**
 - It will be assessed according to the course rubric.
- **Assessment of the exercises on physiotherapy diagnoses:**
 - A part of the assessment will be taken as part of the learning process whereas another part will be marked.
- **Assessing the picture dossier:**
 - Periodically there will be tutorials in group in order to assess the work done.
 - The mark will be the same for all the members of the group.
- **Two partial exams:** one midway through the course and the other one at the end. If passed, the topics covered in them will not be included in the final exam. The student will have the possibility of resitting any of the two partials at the end of the term.
- **Assessment and co-assessment of group work:**
 - On the last day of class, the students will assess and co-assess the members of the group (anonymously). The results will be commented individually.

See table below showing the different percentages of each activity that makes up the final mark:

CONCEPT	PERCENTAGE
CONTINUOUS ASSESSMENT OF MOBILIZATIONS	15%
ASSESSMENT OF MOVEMENT ANALYSIS	5%
EXERCISES ON PHYSIOTHERAPY DIAGNOSES	5%
PICTURE DOSSIER	15%
PARTIAL EXAMS	60%
ATTITUDE AND PARTICIPATION	See norms
ABSENCES	See norms


In order to pass the course, the following conditions have to be met:

- In either partial exam, the student has to get a mark equal to or over 5. If two questions in any partial exam score 0, the exam will be failed.
- The final mark has to be equal to or over 6.
- Compulsory attendance at 80% of classes.

In order to assess attitude and participation, the following aspects will be taken into account.

- Punctuality.
- Hygiene and appearance.
- Attitude and participation in class.

The student will be warned once if any of these aspects is not observed. If the student continues not observing them, this will be reflected in the final mark.


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About absences:


- Non-justified absences will be reflected in the final mark.
- Attendance at 80% of classes is compulsory to be assessed.

MATERIAL / BASIC RECOMMENDED AND REQUIRED READINGS

Books					
Author	Year	Title	City	Publisher	Description/ comment
Berryman Reese, N	1999	Muscle and sensory testing	Filadèlfia	W.B. Saunders	
Calais-Germaine, B.	1995	Anatomía para el movimiento	Barcelona	La liebre de Marzo	3ª edición
Cameron, M.H.	1999	Physcal agents in rehabilitation. From research to practice	Filadèlfia	W.B. Saunders	
Canamasas Ibañez, S	1993	Técnicas manuales: masoterapia	Barcelona	Masson/Salvat Medicina	
Cassar, M.P.	2001	Manual de masaje terapéutico	Madrid	Mc Graw-Hill Interamericana	
Daza, J.	2007	Evaluación clínico-funcional del movimiento corporal humano	Bogotá	Panamericana	
Dotte, P.	1999	Método de manutención manual de los enfermos. Tomo I: Ergomotricidad en el ámbito sanitario generalidades y educación gestual específica	Barcelona	Springer-Verlag Ibérica	
Dotte, P.	1999	Método de manutención manual de los enfermos. Tomo II: Ergomotricidad en el ámbito sanitario aplicaciones clínicas	Barcelona	Springer-Verlag Ibérica	
Dufour, M.	2004	Anatomía del aparato locomotor 1. Miembro inferior.	Barcelona	Masson	
Dufour, M.	2004	Anatomía del aparato locomotor 3. Cabeza y tronco	Barcelona	Masson	
Génot, C.	1987	Kinesioterapia. Toms I i II	Buenos Aires	Médica Panamericana	
Génot, C.	1987	Kinesioterapia. Toms III i IV	Buenos Aires	Médica Panamericana	
Hislop, H. J., Montgomery, J.	2003	Daniels & Worthingham. Técnicas de balance muscular.	Madrid	Saunders; Elsevier	7a edició

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Hoffa, Gocht, Strock, Lüdke	1985	Técnica de masaje	Barcelona	Jims SA	
Hoppenfeld, S.	1979	Exploración física de la columna vertebral y las extremidades.	Mèxic	Manual Moderno	18a impressió
Kaltenborn, F.M.	2001	Fisioterapia manual: Extremidades	Madrid	McGraw-Hill; Interamericana	
Kaltenborn, F.M.	2004	Fisioterapia manual: Columna	Madrid	McGraw-Hill; Interamericana	
Kapandji, I. A.	2002	Cuadernos de fisiología articular. Tomo 2: Miembro Inferior	Barcelona	Maloine – Editorial Médica Panamericana	5a edició
Kapandji, I. A.	2001	Cuadernos de fisiología articular. Tomo 3: Tronco y Raquis	Barcelona	Maloine – Editorial Médica Panamericana	5a edició
Kendall, F.P., Kendall McCreary E	1985	Músculos: Pruebas y funciones	Barcelona	Jims	2a edició
Llusà, M., Merí, A., Ruano, D.	2004	Manual y Atlas Fotográfico de Anatomía del aparato locomotor		Médica Panamericana	
Meadows, J.T.	2000	Diagnóstico diferencial en fisioterapia	Madrid	McGraw-Hill-Interamericana	
Netter, F.H.	1999	Atlas de anatomía humana	New Jersey	Masson	2ª edición
Norkin C.C., White D.J.	2006	Goniometría, evaluación de la movilidad articular	Madrid	Marbán	
Pleguezuelos Cobo, E., et al.	2008	Atlas de puntos clave musculares en la práctica clínica.	Madrid	Médica Panamericana	
Rohen-Yocochi	1994	Atlas fotográfico de anatomía humana	Barcelona	Doyma	3ª edición
Shneider, W.; Dvôrák, J.; Tristchler, T.	1993	Medicina manual. Diagnóstico	Barcelona	Scriba	
Shneider, W.; Dvôrák, J.; Dvôrák, V.; Tristchler, T.	1994	Medicina manual. Terapéutica	Barcelona	Scriba	
Sobotta	2001	Atlas de anatomía humana. Vol. I, II.	Barcelona	Panamericana	21ª edición
Tixa, S.	1999	Atlas de anatomía palpatoria de la extremidad inferior. Investigación manual de superficie	Barcelona	Masson	
Tixa, S.	2000	Atlas de anatomía palpatoria del cuello, tronco y extremidad superior. Investigación manual de superficie	Barcelona	Masson	
Viel É.	2001	Diagnóstico fisioterápico. Concepción, realización y aplicación en la práctica hospitalaria.	Barcelona	Masson	
Whaley L, Wong D.	1987	<i>Nursing Care of Infants</i>		Mosby	3ª edició

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		<i>and Children</i>		Company	p.1070 Escala de rostres de dolor
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Articles						
Author	Title	Publication	Volume	Year	Pages	Description/ comment
Loewen, S.C., Anderson, B.A.	Rehability of the Modified Motro Assessment Scale and the Barthel	Phys. Therap.	68	1988	1077- 1081	
Marc T, Gaudin T, Teissin J.	Evaluation de l'épaule.	Ann. Kinesither.	24/3	1997	146-152	
Tinetti, M.E.	Performance oriented assessment of mobility problems in elderly patients	J. Am. Ger. Soc.	34	1986	119-126	
Viel, E. Et al.	La stratégie générale d'évaluation	Ann. Kinesither.	21/2	1994	84-86.	
Viel, E., Pierron, G.	Recherche et validation des actes de kinesithérapie	Kinesither. Scient.	369	1997	6-12	
Wong D, Baker C.	Pain in children: Comparison of assessment scales	Pediatric Nursing	14(1)	1988	9-17	

Web pages			
Title	Description	URL	
ProgramaFbalII.pdf	Programa de l'assignatura	Intranet de l'assignatura	
AnnexeManualFbalII.pdf	Annexes al Manual de Fisioteràpia bàsica de l'aparell locomotor I	Intranet de l'assignatura	
NormesFbal.pdf	Normes per a l'assistència a les classes	Intranet de l'assignatura	
BibliografiaFbalII.pdf	Bibliografia	Intranet de l'assignatura	
FitxaTemps.pdf	Fitxa de temps	Intranet de l'assignatura	
ExercicisDiag.doc	Exercicis de diagnòstic	Intranet de l'assignatura	
ESCALESGENERAL.pdf	Escales de valoració consensuades	Intranet de l'assignatura	
Clasificación Internacional del Funcionamiento, de la Discapacidad y de la Salud		http://whqlibdoc.who.int/publications/2001/9243545426.pdf	

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Audiovisual material			
Title	Description		
BMFbalIII.pdf	Fotografies de Balanç Muscular	Localitzable a l'Intranet de l'assignatura	

Others			
Title	Description		
Pijama	S'ha de comprar a la direcció que es proporciona	PRAT VIDALES Carrer Sant Domènec 4 08172 Sant Cugat del Vallès 93 674 05 22	
Tovallola	L'ha de portar cada alumne		
Goniòmetre de braços	El proporciona l'escola el primer dia de classe		
Talla	La proporciona l'escola el primer dia de classe		
Llapisos perfiladors d'ulls per dibuixar sobre la pell	L'escola proporciona un, però és recomanable que els alumnes portin més colors		
Manual de l'assignatura	El proporciona l'escola el primer dia de classe		