Universitat Autònoma de Barcelona

**2022/2023**

# Function of the Human Body

Code: 102992
ECTS Credits: 9

| Degree | Type | Year | Semester |
|---|---|---|---|
| 2500892 Physiotherapy | FB | 1 | A |

## Contact

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## Use of Languages

Principal working language: catalan (cat)
Some groups entirely in English: No
Some groups entirely in Catalan: Yes
Some groups entirely in Spanish: No

## Teachers

Joaquim Hernández Martín
Esther Udina Bonet
Raquel Moral Cabrera

## Prerequisites

No official prerequisites are defined for this subject. However, it is recommended that the student has acquired the basic knowledge and competences of the subjects corresponding to Cell Biology, Biochemistry and Molecular Biology, and Biophysics.

## Objectives and Contextualisation

The Function of the Human Body subject is programmed during the first course of the Degree of Physiotherapy and develops the knowledge of the basic principles of the function of systems of the human organism. The acquisition of the competences of this subject will allow the student to understand the function of normal systems and be well prepared to confront the mechanisms of the pathologies that afect these systems, and the therapeutic strategies that could improved it.

The general training objectives of the subject are:

- To know the basic concepts of the Physiology of the different functional systems of the healthy human organism.
- To acquire an integrated vision of the interrelations of the different systems of the organism
- To integrate the Physiology knowledge with concepts learned in other basic subjects, that deal with the structure and the cellular and molecular aspects of the organism.
- To train the student to apply the physiological knowledge in deducting the consequences of the diseases.
- To acquire practical skills for performing the most frequent functional tests in the biomedical and physiotherapy field.
- To acquire attitudes aimed at the promotion of health and the prevention of disease, oriented towards health medicine, and appropriate for a medical practice based on scientific evidence.

## Competences

- Analyse and synthesise.
- Display knowledge of the morphology, physiology, pathology and conduct of both healthy and sick people, in the natural and social environment.
- Display knowledge of the sciences, models, techniques and instruments around which physiotherapy is structured and developed.
- Make changes to methods and processes in the area of knowledge in order to provide innovative responses to society's needs and demands.
- Solve problems.
- Take account of social, economic and environmental impacts when operating within one's own area of knowledge.
- Take sex- or gender-based inequalities into consideration when operating within one's own area of knowledge.

## Learning Outcomes

1. Analyse a situation and identify its points for improvement.
2. Analyse and synthesise.
3. Communicate using language that is not sexist.
4. Consider how gender stereotypes and roles impinge on the exercise of the profession.
5. Explain the functioning of the the human body in health in order to have a sound basis for understanding the processes that induce disease.
6. Explain the fundamental biochemical principles of the functioning of the human body.
7. Identify life-threatening situations and perform basic and advanced life support manoeuvres.
8. Identify physiological and structural changes that can take place as a result of the injury and/or disease process in the different systems.
9. Identify situations in which a change or improvement is needed.
10. Propose new methods or well-founded alternative solutions.
11. Propose new ways to measure success or failure when implementing innovative proposals or ideas.
12. Propose projects and actions that incorporate the gender perspective.
13. Propose viable projects and actions to boost social, economic and environmental benefits.
14. Propose ways to evaluate projects and actions for improving sustainability.
15. Solve problems.
16. Weigh up the risks and opportunities of suggestions for improvement: one's own and those of others.

## Content

General and Cellular Physiology (Esther Udina)

Physiology of blood and haematopoietic organs (Mireia Herrando)

Physiology of the cardiovascular system (Joaquim Hernàndez i Esther Udina)

Pysiology of the respiratory system (Joaquim Heràndez)

Pysiology of the renal system and body liquids (Mireia Herrando)

Physiology of the digestive system and nutrition (Mireia Herrando)

Physiology of the endocrine system (Raquel Moral)

Physiology of the reproductive system (Raquel Moral)

Neurophysiology and physiology of the special senses (Esther Udina)

Adaptation of the organism to environmental changes (Joaquim Hernàndez)

## Methodology

Theoretical classes:

Systematized presentation of the subject, relevance giving the most important concepts. The student acquires the basic knowledge of the subject in theory classes, which are complemented by personal study of the topics of the assignment program.

Laboratory practices:

Practice sessions for the observation and performance of procedures, the practical learning of physiological techniques and their application. It promotes group work and active self-learning.

Case work:

Work on cases or problems of relevance for the learning of the subject. The knowledge acquired in theory classes, practices and personal study is applied to the resolution of practical cases that are posed in a way applicable to the environment of the subject.

Tutored teaching:

Availability of support tutorials for the study and independent development of physiological concepts and application to case resolution throughout the semester.

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|---|---|
| Directed activities (35%=74,5h) | Theoretical classes with audiovisual support |
| | Laboratori Practicals |
| Supervised activities (10%=22,5h) | Resolution of clinical cases |
| Autonomous activities (55%= 114 hores) | Research and treatment of complementary information to the theoretical knowledgments of the directed activities |
| | Preparation of the clinical cases and practicals |
| | Study of the contents and realization of schemes, conceptual maps, reviews... |

Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

## Activities

| Title | Hours | ECTS | Learning Outcomes |
|---|---|---|---|
| Type: Directed | | | |
| LAB PRACTICE | 14.5 | 0.58 | 2, 5, 6, 8, 7, 15 |

| | | | |
|---|---|---|---|
| THEORY | 64 | 2.56 | 2, 5, 6, 7 |
| Type: Supervised | | | |
| SUPERVISED | 22.5 | 0.9 | 2, 5, 6, 8, 7, 15 |
| Type: Autonomous | | | |
| SELF STUDY | 114 | 4.56 | 2, 5, 6, 8, 15 |

## Assessment

The competences of this subject will be evaluated by means of objective written tests of the subject and cases and on-site evaluation and / or by means of objective tests of the laboratory practices. The different functional systems detailed in the program will be assessed.

During the course, three blocks will be evaluated individually that will include the following contents:

- BLOCK 1 (General and cellular physiology, Physiology of the blood and hematopoietic organs, Physiology of the cardiovascular system)

- BLOCK 2 (Physiology of the respiratory system, Physiology of the excretory system and body fluids, Physiology of the digestive system and nutrition, Physiology of the endocrine and reproductive systems)

- BLOCK 3 (Physiology of the nervous system, Adaptation of the organism to environmental changes)

To pass the subject the student must take a minimum of 5,0 in each block.

Along the course several tasks, three partial examinations of the continued evaluation and one final exam will be carried out.

Continued Evaluation

Three exams will be carried out along the course. The continuous evaluation of each BLOCK will consist of two components:

A. Partial examination of each block, which will include:

A.1. multiple choice items to assess THEORIC KNOWLEDGE of the subject (60% of the overall grade of the BLOCK).

A.2. multiple choice items and / or written / short questions where the knowledge acquired in the CASES WORK will be evaluated, as well as the ability to integrate these with the THEORIC KNOWLEDGE (30% of the overall grade of the block).

The mark of each partial exam will correspond to 90% of the final mark of each BLOCK.

B. Tests on the knowledge imparted in laboratory practices:

B.1. Evaluation by means of Moodle questionnaire of the concepts acquired previously to the realization of the laboratory practices through the scripts of practices and the theoretical sessions (5% of the global note of the BLOCK).

B.2. On-site evaluation of the laboratory practices and / or questionnaires carried out in the Moodle space on the concepts achieved during their implementation (5% of the overall grade of the BLOCK).

The mark of these tasks will correspond to 10% of the final mark of each BLOCK.

TO PASS EACH BLOCK and thus be able to release material, the student must take a minimum of 4.0 in EACH SUBPART of the partial exam (A.1. and A.2.), an average mark of 5.0 to the final mark of the partial exam (A.1. + A.2.) and thus be able to average with the mark obtained in the practical laboratory tests.

A minimum of 5.0 in the overall mark of each block (90% partial exam A + 10% practical laboratory tests B) is required to pass each block.

TO PASS THE SUBJECT, you must have passed all three blocks with a minimum of 5.0 in each. In this case, the final grade will be the average of the grades obtained in each of the approved blocks.

Final recovery exam

If the student does not meet the requirements (minimum grade of 4,0 in eachsubsection, average of 5,0 for the partial exam and total mark of 5,0 for the block), the student will not release that block and will have to take a final recovery exam, including all subsections of the block not passed.

Students who have passed the continuous assessment of the subject and wish to take the final exam to improve the grade must apply on the dates specified in the call. The final grade will correspond to the highest grade obtained between the continuous assessment or the final recovery exam.

The final retake exam will consist in the following sections:

R.1. multiple choice items to assess THEORIC KNOWLEDGE of the subject (60% of the overall grade of the BLOCK).

R.2. multiple choice items and / or written / short questions where the knowledge acquired in the CASES WORK and LABORATORY PRACTICES will be evaluated, as well as the ability to integrate these with the THEORETICAL KNOWLEDGE (40% of the overall grade of the block).

To pass each block, a minimum of 4.0 must be obtained in each of the recovery sections (R.1. And R.2.) And a final grade of 5.0 (R.1. + R.2.).

No notes will be saved from any subsection of the block not passed during the continuous assessment.

To pass the SUBJECT, you must have passed all three blocks with a minimum of 5.0 in each. In this case, the final grade of the subject will be the average of the grades obtained in each of the approved blocks.

In case of not passing one of the blocks of the subject and / or obtaining a subsection of a single block with a grade lower than 4.0 in the final exam, if the average of R1 + R2 is 4.8 will average with the other blocks passed.

In no case will the grade ofany block from one course to the other be kept, neither of the partial examination nor of the laboratory practices.

Students who do not take any of the scheduled exam sessions in an assessment call will be considered "non-assessable".

Following the publication of the grades for each block and the final grades, a review will be convened so that students who so wish can review the exam and the grade obtained. The dates of these reviews will be announced in advance by the virtual campus in conjunction with the publication of the notes.

## Assessment Activities

| Title | Weighting | Hours | ECTS | Learning Outcomes |
|---|---|---|---|---|
| Assessment of the preparation and resolution of cases or problems and their integration into theoretical-practical knowledge through short written questions and / or multiple choice questions | 30% | 3 | 0.12 | 2, 1, 3, 5, 6, 8, 7, 9, 16, 14, |

| | | | | |
|---|---|---|---|---|
| | | | | 10, 11, 12, 13, 15, 4 |
| Assessment of knowledge and skills acquired in relation to laboratory practices using Moodle questionnaires and / or written tests in situ | 15% | 1 | 0.04 | 2, 1, 3, 5, 6, 8, 7, 9, 16, 14, 10, 11, 12, 13, 15, 4 |
| Assessment of theoretical knowledge through objective tests of multiple answers | 55% | 6 | 0.24 | 2, 1, 3, 5, 6, 8, 7, 9, 16, 14, 10, 11, 12, 13, 15, 4 |

## Bibliography

Relevant bibliography:

- Tortora GJ, Derrickson B. *Principios de Anatomía y Fisiología*. (15ª ed). Editorial Médica Panamericana, 2018. Digital access UAB.

- Constanzo LS, Fisiología (6a Ed). Elsevier-Saunders, 2018

- Tresguerres AF, Villanúa MA, López-Calderón A. *Anatomía y fisiología del cuerpo humano*. Mc Graw HIll, 2009

To consult

- Thibodeau GA, Patton KT. *Anatomía y Fisiología* (6ª ed). Elsevier, 2007.

- Paulev PE, Zubieta G. New Human Physiology, 2nd ed. https://www.zuniv.net/physiology/book/

- Koeppen B and Stanson B. Berne and Levy physiology (7th ed). Elsevier 2017.

- Guyton AC, Hall JE. *Tratado de Fisiología Médica* (13ª ed.). Elsevier-Saunders, 2016.

- Tresguerres JAF. *Fisiología Humana* (4ª ed.). Mc Graw Hill-Interamericana, 2010.

## Software

- MENTIMETER: https://www.mentimeter.com

- SOCRATIVE: https://www.socrative.com