

Function of the Human Body II

Code: 101788
ECTS Credits: 6

Degree	Type	Year	Semester
2500891 Nursing	FB	1	2

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

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Jordi Bruna Escuer
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Ruben Lopez Vales

Prerequisites

It is recommended that the student has previously acquired the basic knowledge and competences about the structure and organization of the human body, as well as the function of some of the body systems, particularly in the subjects "Structure of the Human Body" and "Function of the Human Body I".

Objectives and Contextualisation

The subject "Function of the Human Body II" is programmed during the second semester of the first course of the Degree of Nursing. During the course, the student acquires the knowledge of the normal function of the excretory, digestive, endocrine, reproductive, and nervous systems, as well as of the physiology of adaptation. In addition, the student acquires a first approach to the pathophysiology of disorders of the same systems and their manifestations.

The general training objectives of the subject are:

- To learn the basic physiology of the excretory, digestive, endocrine-reproductive and nervous systems of the healthy human body, as well as the mechanisms of adaptation to changes in the environment.
- To acquire a complete and integrated view of the relationships 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 achieve a global view of the human body function.
- To train the student to apply the physiological knowledge in deducing the consequences of the diseases .
- To acquire practical skills for performing the most frequent functional tests in the biomedical field.

- To acquire attitudes aimed at the promotion of health and the prevention of disease, and appropriate for a nursing practice based on scientific evidence.

Competences

- Analyse and synthesise complex phenomena.
- Develop independent learning strategies.
- Find, evaluate, organise and maintain information systems.
- Offer technical and professional health care and that this adequate for the health needs of the person being attended, in accordance with the current state of scientific knowledge at any time and levels of quality and safety established under the applicable legal and deontological rules.

Learning Outcomes

1. Analyse and synthesise complex phenomena.
2. Describe the three basic elements for any feedback control system.
3. Develop independent learning strategies.
4. Explain the physiological functioning of the human body and the homeostatic mechanisms that regulate it.
5. Find, evaluate, organise and maintain information systems.
6. Identify the physiological functioning of the human body, and health problems resulting from functional disturbances.
7. Identify the signs and symptoms that derive from a situation of malfunctioning of the human body.

Content

Excretory system and body fluids

- Volume and composition of body fluids
- General functions of the kidney
- Function and hemodynamics of the glomerulus
- Assessment of the renal function
- Mechanisms of urine concentration
- Regulation of the volume and the osmolarity of body fluids
- Renal regulation of the acid-base equilibrium
- Physiology of the urinary pathways. Micturition

Digestive system

- Introduction to the digestive physiology
- Motility of the digestive tube
- Digestive secretions
- Digestion and absorption of nutrients

Endocrine system

- Introduction to endocrinology
- Hypothalamus and hypophysis
- Growth hormone system
- Prolactin system
- Hypothalamic-hypophysial-thyroidal axis
- Hypothalamic-hypophysial-suprarenal cortex axis
- Hypothalamic-hypophysial-gonadal axes
- Endocrine pancreas
- Calcium metabolism regulatory hormones
- Adrenal cortex and medulla

Reproductive system

- Female reproductive system
- Male reproductive system
- Fecundation and gestation
- Childbirth and breastfeeding

Nervous system and sensory organs

- Introduction to neurophysiology
- Segmentary control of motion and posture
- Suprasegmentary control of motion and posture
- Nervous regulation of visceral functions
- Introduction to sensory physiology
- Somatic and visceral sensibility
- Gustative and olfactory sensibility
- Auditory and vestibular sensibility
- Visual sensibility
- Electrical cerebral activity. Awakeness and sleep
- Cognitive functions of the nervous system

Adaptation to changes in the environment

[Detailed contents are provided in the Subject Program]

Methodology

Theory classes:

Systematic explanation of the subject topics, giving relevance to the most important concepts. The student acquires the basic scientific knowledge of the subject in theory classes, which will be complemented by self-study of the topics of the subject program.

Laboratory practices:

Practical sessions for the observation and performance of procedures, the practical learning of physiological techniques and their application. Group work and active self-learning are promoted.

Case-based work:

Work on cases or problems of relevance for learning the subject. The knowledge acquired in theory classes, practices and personal study is applied to the resolution of practical cases presented using the moodle application.

Tutorial teaching:

Availability of tutorials for helping in the autonomous study of physiological concepts and application for the resolution of cases throughout the course.

Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
CASE RESOLUTION WORK (SEM)	8	0.32	3, 4, 6, 7, 2
LABORATORY PRACTICES (PLAB)	9	0.36	3, 4, 6, 7, 2
THEORY (TE)	36	1.44	3, 4, 6, 7, 2
Type: Autonomous			
SELF STUDY	90	3.6	3, 4, 6, 7, 2

Assessment

The evaluation of the subject will be based on the theoretical and practical syllabus contained in the Program. The competences of the subject are evaluated by:

Continuous evaluation: throughout the course and consisting in:

- Partial exams: Written evaluations by means of objective tests. These exams evaluate the understanding and knowledge of the concepts of the subject that the student has acquired in the theoretical and practical classes, as well as by his/her self-learning. The exams represent the 75% of the final grade of the subject. The tests consist of: multiple choice questions and/or short written questions. Two partial exams are convened:
 - Block 1: corresponding to the excretory and digestive systems. It represents the 40% of the final grade of the continuous evaluation.
 - Block 2: corresponding to the endocrine and nervous systems and adaptation to the environment. It represents the 60% of the final grade of the continuous evaluation.
- In order to pass the subject, it is necessary to obtain a minimum of 4.0 in each of these two blocks. Once this requirement has been met, the marks in each block are considered and weight averaged to obtain a mark that represents 75% of the final grade of the subject.
- Questionnaires with objective tests delivered during laboratory practices and case seminars, that represent the 25% of the final grade of the subject. The tests consist of: multiple choice questions short written questions, and presentation of works and results.

To pass the subject the student must obtain a minimum of 5.0 in the final grade (composed of 75% from partial exams marks and 25% from evaluation of cases and laboratory practices).

Recovery exam:

Students who have not passed the course through continuous evaluation throughout the course, should perform a recovery exam consisting of objective tests: selection questions (multiple choice) and/or testing (restricted questions). Students must take the exam to recover the theoretical and/or practical syllabus, according to whether they have not passed the theoretical exams, or the evaluation of laboratory practices and specialized seminars, respectively, with a grade higher than 4.0. Students who pass the subject through continuous evaluation do not have to take the final exam, unless they want to choose to upload a grade. According to the general regulations, to participate in the final recovery exam the students must have been previously evaluated in a set of activities the weight of which equals a minimum of two thirds of the total grade of the subject.

As in the continuous evaluation, the final theory exam grade will represent 75% of the final grade of the subject and it will be calculated as the weighted average between the grade of the first block (40%) and the second block (60%). The remaining 25% of the final grade will correspond to the grade obtained in the evaluation of the laboratory practices and the specialized seminars, or the note of the recovery exam of the same. The subject will be considered passed when the final grade is greater than or equal to 5.0.

From the first enrollment, students who have not passed the course through continuous evaluation and who explicitly request it, may submit a final test of recovery, whose grade will equal 100% of the final grade of the subject. The recovery test will be structured according to the same two blocks of the subject and it will be necessary to obtain a grade greater than or equal to 4.0 in each of these two blocks in order to pass the subject.

The student who does not attend any of the scheduled exam sessions will be considered as "non-evaluable". For each one of the exams of the subject a review period will be established, which will be duly announced.

Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Delivery of reports/ Written works	0-25%	0	0	3
Practice: Written evaluation through objective tests: multiple-choice questions / restricted-choice essay tests	0-25%	3	0.12	1, 5, 3, 4, 6, 7, 2
Theory: Written evaluation through objective tests: multiple-choice questions / restricted-choice essay tests	75%	4	0.16	1, 3, 4, 6, 7, 2

Bibliography

- Purves D, et al. Neuroscience 3rd edition. Sinauer Associates, 2004
- Tortora GJ, Derrickson B. Principles of anatomy and physiology. 12th edition. John Wiley and Sons, 2009
- Hall JE. Guyton Textbook of Medical Physiology. 13th ed. Elsevier; 2015.
- Koeppen BM, Stanton B. Berne & Levy Physiology. 7th ed. Elsevier, 2017.