



Universitat de Lleida

DEGREE CURRICULUM **PHYSIOLOGY**

Coordination: PRAT COROMINAS, JOAN

Academic year 2023-24

Subject's general information

Subject name	PHYSIOLOGY			
Code	100604			
Semester	2nd Q(SEMESTER) CONTINUED EVALUATION			
Typology	Degree	Course	Character	Modality
	Bachelor's Degree in Human Nutrition and Dietetics	1	COMMON/CORE	Attendance-based
Course number of credits (ECTS)	9			
Type of activity, credits, and groups	Activity type	PRALAB	PRAULA	TEORIA
	Number of credits	1.5	3	4.5
	Number of groups	3	2	1
Coordination	PRAT COROMINAS, JOAN			
Department	EXPERIMENTAL MEDICINE			
Teaching load distribution between lectures and independent student work	H Presencials 90 Magistral 45 Pràctica 15 Seminari/Treball 30 H. No Presecials 135			
Important information on data processing	Consult this link for more information.			
Language	Anglès Catellà Català			
Distribution of credits	Clases magistrals 4.5 crèdits Seminaris: 3.0 crèdits Pràctiques: 1.5 crèdits			

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
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Subject's extra information

Physiology is a basic subject in all health related degrees according to Royal Decree 1393/2007 of October 29 on the management of Official University Studies. In the formation of graduates in Nutrition it is a fundamental matter due to the implication of physiological knowledge in compressing the functioning of the human body and the bases of the disease.

Physiology defines the characteristics of human beings in health and provides a basis for studying the deviations from this towards the disease. In this context, the teaching of Physiology has a general objective to provide the knowledge of body functions and the acquisition of the methodology for the study and development of attitudes toward health maintenance and treatment of the disease.

The contributions of the Physiology course to the acquirement of skills are: 1 / to provide sufficient knowledge to understand and describe the functions of systems of the healthy organism at different levels of organization and integration processes leading to homeostasis. All as a basis for further understanding the pathophysiology and etiology of disease's mechanisms, therapeutic bases for maintaining a good health status and the prevention of diseases; 2 / to provide appropriate mechanisms to understand and describe the basic methods of functional exploration of the different systems and organs 3 / to facilitate the acquisition of skills needed to perform certain functional explorations and laboratory techniques.

Its main objective is that the students could recognize and know how the structure (histology and anatomy) and function (physiology) of the human body works. This knowledge will enable them to understand and interpret the most advanced physiology and the basis of human pathology. In addition the student will also acquire skills that are fundamental terminology to understand cellular pathology and pathology aspects in other courses.

At the instrumental level, students will become familiar with the techniques and equipment used to study the function of the organs and systems of the human body. In addition, to facilitate the achievement of the theoretical and practical objectives, this course will be used as educational resources seminars and physiology laboratory practices.

Learning objectives

Key skills to contributing

The physiology will encourage and promote the acquisition of the following skills

- Learn how scientific knowledge is generated
- Learn and use the scientific method
- Develop a capacity for critical reasoning
- Develop the ability to interpret the results in simple experimental designs.
- Use the information to rationally solve problems at any time.
- Acquire skills for bibliographic reference
- Acquire the capacity for synthesis to give clear and concise information obtained about a topic.
- Being able to develop teamwork.
- Acquire skills to learn independently and continuously.
- Learn the basics of the disease and more prevalent human diseases.
- Acquire knowledge of animal biology needed to perform experiments on animals.

Learning objectives

At a knowledge level

- Understand and use physiological terminology
- Demonstrate an understanding of the specific components of the human body at a functional level.
- Understand the physiological knowledge of the different structures of the human body.
- Assimilate the concept of functional unit of the human body and the nature and mechanisms of control and integration systems that make it possible.
- Understanding the different physiological mechanisms that contribute to maintaining the homeostasis of the human body
- Analyze the functioning of the different organs and systems and control mechanisms.
- Integrate the functioning of the body and relate the activity of the different organs and systems.
- Recognize the normal physiological as a starting point for assessing the needs of the human body and the relation of this normality with the disease.
- Know the terminology and basic scientific language related to physiology.

In terms of capabilities and applications

- Understand the basic physiology of the body and know how to integrate this knowledge with morphological knowledge.
- Integrate and apply the concepts learned about the normal structure and physiology of the body to understand and interpret the most advanced human physiology and pathology.

In terms of values and attitudes

- Understanding the need of a basic physiological knowledge for the professional development in the future in the field of health sciences.
- Understand how scientific knowledge is generated, and the use the scientific method.

Competences

Competencies segons el Pla de Estudis del Grau de Nutrició Humana i Dietètica.

1 Conèixer l'estructura i funció dels cos humà, des del nivell molecular a l'organisme complet, en les diferents etapes de la vida.

7. Conèixer les bases i fonaments de l'alimentació i la nutrició humana

Subject contents

Section 1: Cell and tissue physiology

Topic 1: Overview of the structure of the human body: cells, tissues, organs and systems.

Topic 2: Microcirculation and dynamics of the extracellular fluid. The Starling-Landis mechanism

Topic 3: The cell in the internal environment. Cellular communication mechanisms

Topic 4: Classification, general structure and functional principles of the different tissues of the body

Topic 5: Specialized cellular functions: excitability, motility and secretion. immunity

Section 2: Maintenance of the internal environment

Topic 6: Structure of the vascular tree:

Unit 7: Structure and function of the heart and regulation

Unit 8: Excretory function and regulation

Section 3: Metabolic support functions

Topic 9: Overview of oxidative metabolism

Unit 10: Transport of gases in the extracellular environment. pH and buffers

Unit 11: Pulmonary ventilation and regulation

Topic 12: Digestion

Topic 13: Absorption and storage of nutrients

Unit 14: Metabolism of proteins, carbohydrates, lipids and vitamins and minerals.

Section 4: Control and coordination functions

Unit 15: Physiology of the neuron and neural networks

Unit 16: General functions of the nervous system

Unit 17: Neurovegetative regulation and neuroendocrinology

Topic 18: Reproductive function

Item 19: Pregnancy, childbirth. Child nutrition

Methodology

Tasks to be undertaken during learning

To achieve the objectives and to help the acquirement of the described skills the following activities are scheduled:

Lectures (CM): these will be conducted with all students. They are intended to give an overview of the thematic content highlighting those aspects that will be useful in their training.

Seminars (Sem): to be made with 1/2 of the students, the assistance is obligatory. The seminars aim students to apply theoretical concepts and to deepen the most important and most complex aspects of the issues.

Laboratory practice (PL) these will be made with 1/2 of students, the assistance is obligatory. They aim to expand students' knowledge acquired in class physiology and the introduction of new topics in physiology that are not given in lecture activities.

Evaluation

The evaluation of the theory presented in the classroom is carried out in 2 tests, each of which will be carried out in the period reserved for that purpose.

The learning acquired in the practices and seminars will also be evaluated in an independent test that will be carried out together with the second theory test,

It is necessary to pass the 5 e each of the tests, having the right to a recovery test for each one suspended.

To pass the subject you must pass all three tests.

The tests will all be objective response evaluations (V/F in principle)

The final grade will correspond to the average of the 3 tests

Attendance at teaching activities may add up to one point to the grade out of 10 obtained with the tests.

The grade for attendance will require attending all classes, practices and seminars to obtain the additional point.

Each activity will be rated out of 10, minus 2 points for each absence. Thus, with 5 absences an activity will stop contributing points.

The calculation of points out of 1 that will be added to the grade is taken from the average of the 3 activities/10

Bibliography

On-line resources from the Library of the University of Lleida

<http://biblioguies.udl.cat/c.php?g=381764&p=2586597>

Other recommended books

- Costanzo LS. Fisiologia. 4ta. Ed. Editorial Elsevier.Barcelona, ??Espanya. 2011.
- Córdova A. Fisiologia Dinàmica. Editorial Masson. Barcelona, ??Espanya. 2003.
- Guyton AC, Hall JE. Tractat de fisiologia mèdica. 12^a. Ed. Editorial Elsevier, Barcelona, ??Espanya 2011.
- Pocock G, Richards CD. Fisiologia Humana. La Base de la Medicina. Editorial Masson, Barcelona, ??Espanya. 2002
- Tortora GJ, Derrickson B. Introducció al cos humà. Fonaments d'Anatomia i Fisiologia. Editorial Mèdica Panamericana, Madrid, Espanya. 2008.

Links of interest

www.freemedicaljournals.com

www.scopus.com

www.ncbi.nlm.nih.gov

www.nutricion.org

www.seennutricion.org

www.nal.usda.gov/fnic

Revistes

Journal of Nutrition

European Journal of Nutrition

American Journal of Clinical Nutrition

Obesity

Molecular Nutrition and Food Research

Endocrinologia i Nutrició

Food Science and Nutrition

International Journal of Food Science and Nutrition

Journal of Food Science

Journal of Food Protection

Nutrition Reviews