Universitat de Lleida

DEGREE CURRICULUM

PHYSIOLOGY

Coordination: PRAT COROMINAS, JOAN

Academic year 2022-23

Subject's general information

<table>
<tr><td>Subject name</td><td>PHYSIOLOGY</td></tr>
<tr><td>Code</td><td>100604</td></tr>
<tr><td>Semester</td><td>2nd Q(SEMESTER) CONTINUED EVALUATION</td></tr>
<tr><td>Typology</td><td>
<table>
<tr><th>Degree</th><th>Course</th><th>Character</th><th>Modality</th></tr>
<tr><td>Bachelor's Degree in Human Nutrition and Dietetics</td><td>1</td><td>COMMON/CORE</td><td>Attendance-based</td></tr>
</table>
</td></tr>
<tr><td>Course number of credits (ECTS)</td><td>9</td></tr>
<tr><td>Type of activity, credits, and groups</td><td>
<table>
<tr><th>Activity type</th><th>PRALAB</th><th>PRAULA</th><th>TEORIA</th></tr>
<tr><th>Number of credits</th><td>1.5</td><td>3</td><td>4.5</td></tr>
<tr><th>Number of groups</th><td>3</td><td>2</td><td>1</td></tr>
</table>
</td></tr>
<tr><td>Coordination</td><td>PRAT COROMINAS, JOAN</td></tr>
<tr><td>Department</td><td>EXPERIMENTAL MEDICINE</td></tr>
<tr><td>Teaching load distribution between lectures and independent student work</td><td>H Presencials 90
Magistral 45
Pràctica 15
Seminari/Treball 30

H. No Presecials 135</td></tr>
<tr><td>Important information on data processing</td><td>Consult this link for more information.</td></tr>
<tr><td>Language</td><td>Anglès
Català
Català</td></tr>
<tr><td>Distribution of credits</td><td>Clases magistrals 4.5 crèdits
Seminaris: 3.0 crèdits
Práctiques: 1.5 crèdits</td></tr>
</table>

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
ALZA BLANCO, LIA	lia.alza@udl.cat	,5	
PRAT COROMINAS, JOAN	joan.prat@udl.cat	10,5	
SERRANO CASASOLA, JOSE CARLOS ENRIQUE	josecarlos.serrano@udl.cat	4	

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 physiology and tissues

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

Session 2: The cell in the internal environment. Functions of the eukaryotic cell. Plasma and extracellular fluid.

Session 3: Regulation of cell function and reproduction. Regulation of gene expression. Intercellular

communication.

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

Session 5: Specialized cellular functions: excitability, motility, and secretion. Immunity.

Section 2: Control and coordination functions

Session 6: Physiology of the neuron and neural networks

Session 7: General functions of the nervous system

Session 8: Neurovegetative regulation and neuroendocrinology

Session 9: Reproductive function

Session 10: Pregnancies, childbirth. Child nutrition.

Section 3: Metabolic support functions

Session 11: Overview of oxidative metabolism

Session 12: Transport of gases in the extracellular environment. pH and buffers

Session 13: Pulmonary ventilation and regulation

Session 14: Digestion

Session 15: Absorption and storage of nutrients

Session 16: Metabolism of proteins, carbohydrates, lipids and vitamins and minerals.

Section 4: Maintenance of the external environment

Session 17: Structure of the vascular tree:

Session 18: Structure and function of the heart and regulation

Session 19: Excretory function and regulation

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

.

.

Written test questions on the main knowledge 80%
Lab evaluation 10%
Seminar evaluation 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. 12ª. 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

2022-23

Journal of Food Science

Journal of Food Protection

Nutrition Reviews