1. OVERVIEW

Subject Area	Physiology
Degree	Bachelor's Degree in Human Nutrition and Dietetics
School/Faculty	Biomedical and Health Sciences
Year	First
ECTS	6 ECTS
Type	Core
Language(s)	Spanish
Delivery Mode	On-campus and blended
Semester	First semester
Coordinating professor	María Jesús Sanz Peña

2. INTRODUCTION

The subject area of 'Physiology', worth 6 ECTS credits, is part of the overall subject 'Structure and Function of the Human Body' in 'Module 1: Core Training' within the Bachelor's Degree in Human Nutrition and Dietetics.

Studying this subject area will allow students to acquire fundamental knowledge on the functioning of the human body, through the study of how the apparatuses and systems of the body work.

Learning and understanding the contents covered in this subject area will provide the foundational knowledge required for understanding and studying other subject areas within the curriculum of this degree.

3. SKILLS AND LEARNING OUTCOMES

Key skills (CB, by the acronym in Spanish):

- CB1: Students have shown their knowledge and understanding of a study area that builds on general secondary school education, and are usually at the level where, with the support of more advanced textbooks, they may also demonstrate awareness of the latest developments in their field of study.
- CB2: Students should know how to apply the knowledge acquired and their problem-solving skills in new or relatively little-known environments within wider (or multidisciplinary) contexts related to their area of study.

- CB4: Students can communicate information, ideas, problems and solutions to both specialist and non-specialist audiences.

General skills (CG, by the acronym in Spanish):

- CG14: Apply scientific knowledge of physiology, pathophysiology, nutrition and food to dietary planning and advice for individuals and groups of all ages, including both healthy and unwell people.

Cross-curricular skills (CT, by the acronym in Spanish):

- CT4: Adaptability: ability to detect and respond to a changing environment. Ability to equip themselves and work effectively in different situations and/or with different groups or individuals. This means adapting to change depending on circumstances or needs. It involves the confidence to take on crucial challenges on a personal or group level, maintaining a good physical and mental health to allow work to be carried out effectively.
- CT6: Problem solving: Ability to resolve an unclear or complex issue or situation which has no established solution and requires skill to reach a conclusion.
- CT9: Ability to put knowledge into practice, using the skills acquired in the classroom to mock situations based on real life experiences that occur in the relevant profession.

Specific skills (CE, by the acronym in Spanish):

- CE5: Know the foundations of the physiology, morphology and functions of the different cells, organs and systems of the human body.
- CE6: Know the molecular and cellular basis of blood. Homeostasis and coagulation, the main principles of cell excitability, the functional properties of the musculoskeletal system, the functions of skin and attached organs.
- CE7: Know the physiology of the cardiovascular, respiratory, digestive, excretory, urinary, endocrine and nervous system.

Learning outcomes (RA, by the acronym in Spanish):

- RA1: Learn about and demonstrate knowledge of the structure and functioning of the human body on a holistic level.
- RA2: Demonstrate knowledge of human physiology, including the normal ranges of values for the main physiological parameters and variations in the functions of the human body due to gender and age.
- RA3: Know and understand the characteristics, functional role and regulation of the main hormones in the body.
- RA4: Know how to apply physiological knowledge in order to understand functional abnormalities.
- RA5: Knowledge of what happens to the body during physical exercise, responses and adaptations.

The following table shows how the skills developed in the subject area match up with the intended learning outcomes:

Skills	Learning outcomes
CB1, CB2, CB4, CT6, CE5	**RA1:** Learn about and demonstrate knowledge of the structure and functioning of the human body on a holistic level.
CG14, CT9, CE5, CE6, CE7	**RA2:** Demonstrate knowledge of human physiology, including the normal ranges of values for the main physiological parameters and variations in the functions of the human body due to gender and age.
CB2, CE5, CE7	**RA3:** Know and understand the characteristics, functional role and regulation of the main hormones in the body.
CB1, CB2, CT6, CE5, CE6, CE7	**RA4:** Know how to apply physiological knowledge in order to understand functional abnormalities.
CB2, CT9, CE6, CE7	**RA5:** Knowledge of what happens to the body during physical exercise, responses and adaptations.

4. CONTENTS

Unit 1: Introduction and foundations

Topic 1: Introduction to human physiology.

Topic 2: Membrane dynamics. Cell communication.

Unit 2: The nervous system

Topic 3: Introduction to the nervous system.

Topic 4: Neurophysiology. Nerve impulse transmission.

Topic 5: Synapses. Sensory physiology. The autonomic nervous system.

Learning Unit 3: Muscle tissue

Topic 6: Introduction to muscle tissue.

Topic 7: Physiology of muscle contraction.

Learning Unit 4: Blood. The immune system. The integumentary system

Topic 8: Blood.

Topic 9: The immune system.

Topic 10: The integumentary system.

Learning Unit 5: The endocrine system and reproduction

Topic 11: The endocrine system 1.

Topic 12: The endocrine system 2

Topic 13: The endocrine system 3 and reproduction

Learning Unit 6: Physiology of the respiratory system and cardiovascular system

Topic 14: Respiratory physiology.

Topic 15: The cardiovascular system

Learning Unit 7: Physiology of the digestive system and urinary system

Topic 16: Physiology of the digestive system.

Topic 17: Physiology of the excretory system

5. TEACHING/LEARNING METHODS

The types of teaching/learning methods are as follows:

- Lecture
- Learning based on workshops/labs
- Collaborative learning
- Simulated environments
- Case studies

6. LEARNING ACTIVITIES

The types of learning activities, plus the amount of time spent on each activity, are as follows:

On campus:

Learning activity	Number of hours
Lecture	50 h
Independent working	37.5 h
Workshops and/or lab work	18 h
Practical exercises	12.5 h
Group activities	14 h
Tutorials	14 h
Knowledge test	4 h
TOTAL	**150 h**

Blended learning

Learning activity	Number of hours
Reading of content	18 h
Online seminars	10 h
Independent working	55.5 h
Workshops and/or lab work	18 h
Practical exercises	12.5 h
Group activities	14 h
Online tutorials	17.5 h
Knowledge test	4
TOTAL	**150 h**

7. ASSESSMENT

The assessment methods, together with their respective weighting towards the final grade for the subject, are as follows:

On campus:

Assessment method	Weighting
Knowledge test	50
Laboratory work	20
Learning portfolio	20
Performance observation	10

Blended:

Assessment method	Weighting
Knowledge test	50
Laboratory work	20
Learning portfolio	20
Performance observation	10

On the Virtual Campus, when you open the subject area, you can see all the details of your assessment activities, including the deadlines and assessment procedures for each activity.

8. BIBLIOGRAPHY

The reference works for following this subject area are:

- Silverthorn, Dee Unglaub (2014). Fisiología Humana, Un enfoque integrado. Buenos Aires: Panamericana.
- Tórtora, Gerard J; Derrickson, Bryan (2013). Principios de Anatomía y Fisiología. Buenos Aires: Panamericana.

The recommended bibliography is indicated below:

- Purves, Dale y colaboradores (2010). Neurociencia. Buenos aires, Madrid: Panamericana.
- Guyton, Arthur C; Hall, John E. (2011). Tratado de Fisiología Médica. Barcelona: Elsevier Health Sciences (E-book).
- Kleine, Bernhard; Winfried G**,** Rossmanith. (2016). Hormones and the Endocrine System: Textbook of Endocrinology. SpringerLink (Online service) (E-book).