VNIVERSITAT DE VALÈNCIA

Course Guide
33979 Fisiologia General

COURSE DATA

Data Subject	
Code	33979
Name	Fisiologia General
Cycle	Grade
ECTS Credits	6.0
Academic year	2022 - 2023

Study (s)

Degree	Center	Acad. year	Period
1103 - Degree in Food Science and Technology	Faculty of Pharmacy and Food Sciences	1	First term

Subject-matter

Degree	Subject-matter	Character
1103 - Degree in Food Science and Technology	7 - Physiology	Basic Training

Coordination

Name	Department
MENA MOLLA, SALVADOR	190 - Physiology

SUMMARY

General Physiology is a basic subject in the Science and Food Technology Degree program. It is taught in the first half of first year of study. It consists of 6 ECTS credits and has both theoretical and experimental components.

This module considers the physiological function of the major mammalian organ systems. With an emphasis on the human body, the study deals with a specific order. It starts with cellular physiology to the study of the major body organs and systems. Using a combination of explanatory lectures and laboratory practical sessions, an integrated vision is offered, understanding the human body as a unit.

PREVIOUS KNOWLEDGE

Relationship to other subjects of the same degree

There are no specified enrollment restrictions with other subjects of the curriculum.

Other requirements

Knowledge in General Chemistry, Organic Chemistry, Biology and Physics subjects are recommended.

OUTCOMES

1103 - Degree in Food Science and Technology

- Know the basic physiology of the human body from the molecular level to the full body, at the various stages of life.
- Learn to understand the body as a whole.
- Understand and interpret how each organ is involved in the maintenance of the constancy of the internal environment.
- Saber cómo plantearse problemas y utilizar los métodos adecuados para su resolución, siendo capaz de llevar a cabo un razonamiento crítico.
- Learn the fundamentals for using the scientific equipment directly related to their professional activity.
- Skills in analysis and synthesis.
- Ser capaz de trabajar en equipo y de organizar y planificar actividades.
- Ser capaz de llevar a cabo una comunicación oral o escrita.

LEARNING OUTCOMES

Acquisition of the skills described in the previous section.

DESCRIPTION OF CONTENTS

1. Introduction to the study of Physiology

Organización morfofuncional del cuerpo humano. Concepto de medio interno y homeostasis.

2. Physiological basics of cell excitability

Membrane potential and action potential. Nerve impulse conduction. Synaptic transmission.

3. Physiological effectors

Concept and types of effectors. Excitation and contraction of skeletal, smooth and cardiac muscles.

4. Homeostasis and regulatory systems

Concept and types of regulatory mechanisms. Anatomic and functional organization of the nervous system. Autonomic Nervous System. Neuroendocrine integration. Hormones: definition and classification. Endocrine control of physiological functions.

5. Physiology of blood circulation

Components and general functions of the blood and the circulatory system. Regulation of cardiac function. Hemodynamics and blood pressure. Integration of cardiovascular function.

6. Respiratory physiology

General Functions of the respiratory system: Diffusion and transport of respiratory gases. Regulation of ventilation.

7. Regulation of salt and water balance

Components and functions of excretory system. Filtration, reabsorption and secretion in the kidney. Integration with the cardiovascular function. Regulation of acid-base balance.

8. Digestive physiology

Anatomic and functional organization of the digestive system. Motility, secretion, digestion and absorption of the digestive system. Defecation.

WORKLOAD

ACTIVITY	Hours	% To be attended
Theory classes	38,00	100
Laboratory practices	10,00	100
Computer classroom practice	4,00	100
Tutorials	2,00	100
Seminars	2,00	100
Development of group work	10,00	0
Development of individual work	5,00	0
Study and independent work	7,00	0
Preparation of evaluation activities	11,00	0
Preparing lectures	50,00	0
Preparation of practical classes and problem	5,00	0
Resolution of online questionnaires	2,00	0
TOTAL	**146,00**	

TEACHING METHODOLOGY

Development of the course:

- 38 lectures of theoretical contents, 1 hour/lecture.
- 3 practical classes of laboratory experiments,
- 1: Osmotic phenomena in living organisms.
- 2: Haematology.
- 3: *in vitro* digestion.
- 1 computer lab session. Action potential will be studied through computer simulation.
- 2 in-class tutorial sessions throughout the course of mandatory attendance (1 hour/session).
- 2 seminars throughout the course of mandatory attendance (1 hour).
- Teamwork according regulatory for coordinated seminars.

During the lectures, examples of the applications of the contents of the subject in relation to the Sustainable Development Goals (SDG) will be indicated, in addition to being included in the proposals of topics for the coordinated seminars. The purpose is to provide students with knowledge, skills and motivation to understand and address these SDGs.

EVALUATION

1st call:
10% Coordinated seminar according to the regulations for coordinated seminars

10% Practices: they will be evaluated through activities carried out through the virtual classroom and a practical exam that will be carried out together with the final exam. Attendance at practices is mandatory to pass the subject.

10% Questionnaires through the Virtual Classroom during the course. These tests do not remove matter.

70% Final exam of all the subjects studied to be carried out according to the official calendar of the center.

To pass the course, a minimum of 50% of the score must be achieved in the theory exam, in the practical exam and in the final grade.

For those students who do not pass the subject in the first call, the grade of the part (s) that are approved will be saved for the 2nd call.

2nd call:

- 10% Coordinated seminar according to the regulations for coordinated seminars.
- 10% Practices: will be evaluated by means of a practical exam. Attendance at practices is necessary to pass the course.
- 80% Final exam of all the subjects studied to be carried out according to the official calendar of the center.

To pass the course, a minimum of 50% of the theory and / or practical exam must be achieved. As well as in the final note.

If the student passes the laboratory part, the grade will be kept for two academic years. At the end of the two courses, the student must repeat the laboratory practices.

REFERENCES

Basic

- Fox. "Fisiología Humana". Ed. McGraw-Hill Interamericana.
- Silverthon. "Fisiología Humana. Un enfoque integrado". Ed. Panamerica.
- Hall y Hall. "Guyton y Hall. Tratado de Fisiología Médica". Ed. Elsevier.

- Barret, Barman, Boitano y Brooks. "Ganong. Fisiología Médica". Ed. McGraw-Hill.
- Constanzo. "Fisiología". Ed. Elsevier.
- Koeppen y Stanton. "Berne y Levy Fisiología". Ed. Elsevier.

Additional

- Putz y Pabst. "Atlas de Anatomía Humana Sobbota". Ed Panamericana.
- Yong y Heath. "Wheaters Histología Funcional". Ed Harcourt.
- Berg, Tymoczko y Stryer. "Bioquímica". Ed. Revert.