

**COURSE DATA****Data Subject**

<b>Code</b>	36359
<b>Name</b>	Physiology
<b>Cycle</b>	Grade
<b>ECTS Credits</b>	6.0
<b>Academic year</b>	2020 - 2021

**Study (s)**

<b>Degree</b>	<b>Center</b>	<b>Acad. year</b>	<b>Period</b>
1212 - Degree in Gastronomic Sciences	Faculty of Pharmacy and Food Sciences	1	First term

**Subject-matter**

<b>Degree</b>	<b>Subject-matter</b>	<b>Character</b>
1212 - Degree in Gastronomic Sciences	2 - Fisiología	Basic Training

**Coordination**

<b>Name</b>	<b>Department</b>
PINEDA MERLO, BEGOÑA	190 - Physiology

**SUMMARY**

General Physiology is a basic subject in the Gastronomy Science 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

## OUTCOMES

### 1212 - Degree in Gastronomic Sciences

- Students must have acquired knowledge and understanding in a specific field of study, on the basis of general secondary education and at a level that includes mainly knowledge drawn from advanced textbooks, but also some cutting-edge knowledge in their field of study.
- Students must have the ability to gather and interpret relevant data (usually in their field of study) to make judgements that take relevant social, scientific or ethical issues into consideration.
- Have knowledge and understanding in the field of gastronomic sciences.
- Be able to engage in new fields of gastronomy in general through independent study.
- Be able to work in a team and to organise and plan activities, always taking account of gender perspective.
- Prepare and handle the writings, reports and action procedures best suited to the problems raised, using non-sexist language.
- Be able to take the approaches required to reduce a problem to a manageable level.
- Be familiar with the functioning of the different body apparatuses and systems of interest to the gastronomic sciences.

## LEARNING OUTCOMES

- Understand human physiology from cellular physiology to the entire organism.
- Interpret the participation of each organ in the maintenance of the internal environment.
- Understand the organism as a unit.



## DESCRIPTION OF CONTENTS

### 1. Introduction to the study of Physiology

Morphofunctional organization of the human body. Concept of internal environment and 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 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	60,00	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
<b>TOTAL</b>	<b>150,00</b>	

## TEACHING METHODOLOGY

Development of the course:

45 lectures of theoretical contents: 38 hours of theoretical lectures (1 hour/lecture); 2 hours in-class tutorial sessions throughout the course (1 hour/session). 5 hours of seminars throughout the course of mandatory attendance (1 hour). Teamwork: a written report submitted in an electronic file.

3 practical classes of laboratory experiments,

1: Osmotic phenomena in living organisms.

2: Taste.

3: In vitro digestion.

2 computer lab session. Action potential and digestive processes will be studied through computer simulation.

Lab reports submitted within one week of completing each practice.

## EVALUATION

Continuous assessment (30% of final grade).

Individual and teamwork (10% of final grade). An evaluation of the personal involvement of each student and the quality of work presented. Attendance at seminars is mandatory to be evaluated in this section.



Practices (10% of the final grade) will be evaluated by the lab reports. Attendance at practices is mandatory to pass the subject.

1 objective tests: a short multiple choice test (10% of final grade), including the theoretical content of the units 1-4.

Acquisition of knowledge of the subject. Exam (70% of final): final exam (according to the official school calendar), which includes theoretical and practical content of the subject. This exercise should reach at least 50% of the maximum score to pass the subject. Students who do not pass the first call have to do an exam of all theoretical and practical contents in the second call. Assessment of this second call will consider teamwork (10% of final grade) and the evaluation of lab reports (10% of final grade). If a student does not assist to the final exam will be marked like No Presented.

## REFERENCES

### Basic

- Referencia b1: Fox. Fisiología Humana. (12ªEd.) Ed. McGraw-Hill Interamericana, 2011
- Referencia b2: Ganong. Fisiología Médica. (23ªEd) Ed Mc Graw Hill, 2010
- Referencia b3: Silverthorn. Fisiología Humana. Un enfoque integrado. (6ªEd.) Ed. Panamericana, 2014
- Referencia b4: Tresguerres. Fisiología Humana. (4ªEd.) Ed Mc Graw Hill, 2010
- Referencia b5: Pocock y Richards. Fisiología Humana. La base de la Medicina. (2ª Ed.) Ed. Masson, 2005
- Referencia b6: Thibodeau y Patton. Estructura y función del cuerpo humano. (14ª Ed.) Ed. Elsevier, 2012
- Referencia b7: Guyton. Tratado de Fisiología Médica. (12ªEd.) Ed. Elsevier, 2011
- Referencia b8: Mulroney y Myers. Netter. Fundamentos de Fisiología. (1ªEd) Ed Elsevier, 2011
- Referencia b9: Berne y Levy. Fisiología. (6ªEd.) Ed. Elsevier, 2009
- Referencia b10: Rhoades y Tanner. Fisiología Médica. (1ªEd.) Ed. Masson, 1997
- Referencia b11: Conti. Fisiología Médica. (1ª Ed.) Ed Mc Graw Hill, 2010
- Referencia b12: Costanzo. Fisiología. (5ª Ed.) Ed. Elsevier, 2014
- Referencia b13: Tortora y Derrickson. Principios de Anatomía y Fisiología. (11ªEd.) Ed. Panamericana, 2006

### Additional

- Referencia c1: Putz y Pabst. Atlas de Anatomía Humana Sobotta. (22ªEd.) Ed Panamericana, 2006
- Referencia c2: Yong y Heath. Wheaters Histología Funcional. (1ªEd) Ed Harcourt, 2000
- Referencia c3: Berg, Tymoczko y Stryer. Bioquímica. (2ªEd.) Ed. Reverté, 2014
- Referencia c4: Nancy Fernández. Manual de Laboratorio de Fisiología. (5ªEd) Ed Mc Graw Hill, 2011





## **ADDENDUM COVID-19**

**This addendum will only be activated if the health situation requires so and with the prior agreement of the Governing Council**

### 3. Teaching methodology

The activities usually scheduled in the subject adapted to the hybrid modality will be carried out, which will combine classroom teaching (practices, tutorials, seminars) with non-classroom teaching (theoretical teaching).

The tools for teaching theoretical non-contact teaching will include synchronous videoconferences through Blackboard, didactic material available in the Virtual Classroom and the completion of self-evaluation forms. The videoconference sessions will be held at the original scheduled time for the face-to-face classes.

The practical teaching will be carried out face-to-face with the required capacity and distance restrictions, and will be completed with didactic material that will introduce the theoretical bases of the tasks to be carried out, problems related to laboratory work and videos recorded in the laboratory, all of this available in the Virtual Classroom.

In case of not being able to do the tutorials, seminars and practices in person, the tools described above will be used to carry them out.

### 4. Evaluation

The distribution of the subparts is modified as follows:

Continuous assessment (40% of the final grade)

- Questionnaires (20% of the final grade) with multiple-choice questions at the end of each of the modules that make up the theoretical part. They will be carried out online through a Virtual Classroom with limited time.
- Seminars and problems (10% of the final grade): activities related to the theoretical modules will be carried out, which will be evaluated by means of Virtual Classroom questionnaires.
- Practices (10% of the final grade): the attitude and the correct execution of the face-to-face practical procedures will be evaluated, as well as the resolution of problems and questions that will be carried out online through Virtual Classroom questionnaires.

Final evaluation (60% of the final grade): single final exam with multiple choice questions that will be done in person according to the official calendar of the center. In case the exam cannot be done in person, it will be done online through the Virtual Classroom. In the event that technical problems occur during the exam, the student will report said incident using the Virtual Classroom tools and / or email, and an alternative solution will be arbitrated so that they can take the exam.