UNIVERSIDAD DE CASTILLA - LA MANCHA

GUÍA DOCENTE

1. General information

Course: HUMAN PHYSIOLOGY
Code: 58308
Type: BASIC
ECTS credits: 9
Degree: 383 - UNDERGRADUATE DEGREE PROGRAMME IN FOOD SCIENCE AND TECHNOLOGY
Academic year: 2023-24
Center: 1 - FACULTY OF SCIENCE AND CHEMICAL TECHNOLOGY
Group(s): 22
Year: 1
Duration: AN
Main language: Spanish
Second language: English
Use of additional languages:
English Friendly: Y
Web site:
Bilingual: N

Lecturer: **NILDA DEL CARMEN GALLARDO ALPIZAR** - Group(s): **22**

Building/Office	Department	Phone number	Email	Office hours
Facultad de Ciencias y Tecnologías Químicas. Lab Bioquímica. Ciudad Real	QUÍMICA INORG., ORG., Y BIOQ.	6280	nilda.gallardo@uclm.es	Monday, Tuesday and Wednesday from 10 to 12h. To be arranged after consultation by email with Nilda Gallardo and Sara Artigas (sara.artigas@uclm.es).

2. Pre-Requisites

Not established

3. Justification in the curriculum, relation to other subjects and to the profession

To get basic knowledge about human body function: crosstalk between organs and systems to allow the normal working function leading to maintain the homesostasis. Special focus will be taken about food intake regulation.

4. Degree competences achieved in this course

Course competences

Code	Description
CB02	Apply their knowledge to their job or vocation in a professional manner and show that they have the competences to construct and justify arguments and solve problems within their subject area.
E02	To acquire basic knowledge in biology, biochemistry, physiology and microbiology to allow the study of the nature of foods, causes of their alteration and fundamentals of their production, as well as their role in human nutrition and dietetics
G01	To develop the aptitude to gather and interpret information and data to issue critical judgments that include a reflection on relevant topics of social, scientific or ethical nature.
G02	To possess a correct oral and written communication. To transmit information, ideas, problems and solutions to a both specialized and not specialized public.
G09	To develop the motivation for quality, the capacity to adapt to new situations and the creativity.

5. Objectives or Learning Outcomes

Course learning outcomes

Description

To get a deep insight on basic principles of human physioilogy, specially those related with the mechanims involved in food intake processes

To understand the basic relantionship between the physiologiacl procees of food intake and human health

To understand the importance of the interrelationships between all human tissues/organs functions

Being able to collect bibliographic data, present it orally and discuss it.

6. Units / Contents

Unit 1: CELLULAR PHYSIOLOGY

Unit 1.1 Introduction. Cell Physiology. Extracellular & intracellular luidid compartments. Transport. Homeostasis.

Unit 1.2 Neurons. Resting Membrane and Action Potential. Propagation of Action Potentials. Neurotransmitters & Receptors. Synapsis. Neuromuscular junction.

Unit 1.3 Muscle. Muscle contraction. Muscle types. Skeletal muscle. Cardiac muscle. Smooth muscle.

Unit 2: NERVOUS SYSTEM PHYSIOLOGY

Unit 2.1 Central Nervous System. Anatomy. Cerebrospinal Fluid. Central and Peripheral Nervous System.

Unit 2.2 Sensory Physiology. Stimulus Reception and Processing. Sensory Functions of the Skin. Propiocepcion. Nocicepcion.

Unit 2.3 Sense of Smell. Sense of Taste.

Unit 2.4 Organization of the Autonomic Nervous System. Cholinergic and Adrenergic Transmission. Acetylcholine and Catecholamine Receptors. Hypothalamus.

Unit 2.5 Motor System Organization. Movement. Voluntary Motor Function. Function of Basal Ganglia. Function of Cerebellum. Postural Motor Control.

Unit 3: BLOOD and CARDIOVASCULAR SYSTEM

Unit 3.1 Composition and Function of Blood. Eritropoyesis. Immune System. Hemostasis. Fibrinolysis.

Unit 3.2 Heart: Structure and Function. Cardiac Impulse Generation and Conduction. Circulation and Cardiac Cycle. Regulation of the Circulation.

Unit 3.3 Blood Vessels anmd Blood Flow. Endothelial Exchanger Processes.

Unit 4: GASTROINTESTINAL TRACT

Unit 4.1 GI Overview. Digestion and Absorption of Food. Secretory and Motility Activity of the GI tract. Neuronal and Hormonal Integration.

Unit 4.2 Saliva and Deglutition. Stomach Strucuture and Motility. Gastric Juice. Small Instestine Function. Pancreas. Bile. Excretory Liver Function. Carbohydrate, Lipid and Protein Digestion and Absorption.

Unit 4.3 Nutrition and Immune Defense. Allergies.

Unit 4.4 Food Intake Physiology. CNS regulation of food intake. Role of Hypothalamus. Regulation of Food Intake by Peripherlas Signals.

Unit 5: ENDOCRINE SYSTEM

Unit 5.1 Endocrine System Overview. Hormones. Hypothalamic-Pituitary System.

Unit 5.2 Pituitary Hormones. Anterior and Posterior Lobes of the Pituitary: Structure and Hormones.

Unit 5.3 Thyroid Hormones. Adrenal Cortex: Structure and Hormones.

Unit 5.4 Pancreatic Hormones. Calcium and Phosphate Regualtion.

Unit 6: RENAL SYSTEM

Unit 6.1 Kidney Structure and Function. Renal Circulation. Nephron. glomerular Filtration, Clearance and Transport Processes at the Nephron.

Unit 6.2 Regulation of Water and Inorganic Ions. Body Fluid Homeostasis. Tubiloglomerular Feedbac. Renin-Angiotensin System.

Unit 7: RESPIRATORY SYSTEM

Unit 7.1 Lung Function. Respiration. Lung Volumes. Surface Tension. Dynamic Lung Function.

Unit 7.2 Pulmonary Gas Exchange. Acide-Base Balance. Binding and Transport of CO2 and O2 in Blood.

Unit 7.3 Respiratory Control and Stimulation. Central Control of Respiration.

ADDITIONAL COMMENTS, REMARKS

None

7. Activities, Units/Modules and Methodology

Training Activity	Methodology	Related Competences (only degrees before RD 822/2021)	ECTS	Hours	As	Com	Description
Class Attendance (theory) [ON-SITE]	Lectures		2.8	70	N	-	
Computer room practice [ON-SITE]	Work with simulators		0.6	15	Y	Y	
Other on-site activities [ON-SITE]	Guided or supervised work		0.2	5	N	-	
Progress test [ON-SITE]	Assessment tests		0.2	5	Y	N	
Self-study [OFF-SITE]	Self-study		0.4	10	Y	N	
Study and Exam Preparation [OFF-SITE]	Self-study		3.2	80	Y	N	
Final test [ON-SITE]	Assessment tests		0.2	5	Y	Y	
In-class Debates and forums [ON-SITE]	Workshops and Seminars		0.3	7.5	Y	Y	
Project or Topic Presentations [ON-SITE]	Group Work		0.7	17.5	Y	Y	
Analysis of articles and reviews [OFF-SITE]	Reading and Analysis of Reviews and Articles		0.4	10	Y	Y	
		Total:	**9**	**225**			
		Total credits of in-class work: 5					**Total class time hours: 125**
		Total credits of out of class work: 4					**Total hours of out of class work: 100**

As: Assessable training activity

Com: Training activity of compulsory overcoming (It will be essential to overcome both continuous and non-continuous assessment).

8. Evaluation criteria and Grading System

Evaluation System	Continuous assessment	Non-continuous evaluation*	Description
Final test	0.00%	90.00%	Cualitative progress report evaluation of student performance
Assessment of activities done in the computer labs	20.00%	10.00%	Two progress partial examination evaluation to be taken in a positive way to evaluate the student assessment during the course
Mid-term tests	40.00%	0.00%	Cualitative evaluation of student participation during the course
Final test	40.00%	0.00%	
Total:	**100.00%**	**100.00%**	

According to art. 4 of the UCLM Student Evaluation Regulations, it must be provided to students who cannot regularly attend face-to-face training activities the passing of the subject, having the right (art. 12.2) to be globally graded, in 2 annual calls per subject , an ordinary and an extraordinary one (evaluating 100% of the competences).

Evaluation criteria for the final exam:

Continuous assessment:

Test based on open questions and multiple answers responses to evaluate theoretical and practical learning

Non-continuous evaluation:

Test based on open questions and multiple answers responses to evaluate theoretical and practical learning

Specifications for the resit/retake exam:

As before

9. Assignments, course calendar and important dates

Not related to the syllabus/contents

Hours	hours

Unit 1 (de 7): CELLULAR PHYSIOLOGY

Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	10
Computer room practice [PRESENCIAL][Work with simulators]	3.75
Other on-site activities [PRESENCIAL][Guided or supervised work]	.7
Progress test [PRESENCIAL][Assessment tests]	.25
Self-study [AUTÓNOMA][Self-study]	4
Study and Exam Preparation [AUTÓNOMA][Self-study]	14
Final test [PRESENCIAL][Assessment tests]	.15

Unit 2 (de 7): NERVOUS SYSTEM PHYSIOLOGY

Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	10
Other on-site activities [PRESENCIAL][Guided or supervised work]	.7
Self-study [AUTÓNOMA][Self-study]	4
Study and Exam Preparation [AUTÓNOMA][Self-study]	14
Final test [PRESENCIAL][Assessment tests]	.15

Unit 3 (de 7): BLOOD and CARDIOVASCULAR SYSTEM

Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	10
Computer room practice [PRESENCIAL][Work with simulators]	3.75
Other on-site activities [PRESENCIAL][Guided or supervised work]	.7
Progress test [PRESENCIAL][Assessment tests]	.25
Self-study [AUTÓNOMA][Self-study]	4
Study and Exam Preparation [AUTÓNOMA][Self-study]	14
Final test [PRESENCIAL][Assessment tests]	.2

Unit 4 (de 7): GASTROINTESTINAL TRACT

Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	20
Computer room practice [PRESENCIAL][Work with simulators]	3.75
Other on-site activities [PRESENCIAL][Guided or supervised work]	.75
Progress test [PRESENCIAL][Assessment tests]	.25
Self-study [AUTÓNOMA][Self-study]	8
Study and Exam Preparation [AUTÓNOMA][Self-study]	16
Final test [PRESENCIAL][Assessment tests]	.2

Unit 5 (de 7): ENDOCRINE SYSTEM

Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	16
Computer room practice [PRESENCIAL][Work with simulators]	3.75
Other on-site activities [PRESENCIAL][Guided or supervised work]	.75
Progress test [PRESENCIAL][Assessment tests]	.25
Self-study [AUTÓNOMA][Self-study]	4
Study and Exam Preparation [AUTÓNOMA][Self-study]	14
Final test [PRESENCIAL][Assessment tests]	.2

Unit 6 (de 7): RENAL SYSTEM

Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	2
Other on-site activities [PRESENCIAL][Guided or supervised work]	.7
Self-study [AUTÓNOMA][Self-study]	4
Study and Exam Preparation [AUTÓNOMA][Self-study]	14
Final test [PRESENCIAL][Assessment tests]	.08

Unit 7 (de 7): RESPIRATORY SYSTEM

Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	2
Other on-site activities [PRESENCIAL][Guided or supervised work]	.7
Self-study [AUTÓNOMA][Self-study]	4
Study and Exam Preparation [AUTÓNOMA][Self-study]	14
Final test [PRESENCIAL][Assessment tests]	.02

Global activity

Activities	hours
Class Attendance (theory) [PRESENCIAL][Lectures]	70
Computer room practice [PRESENCIAL][Work with simulators]	15
Progress test [PRESENCIAL][Assessment tests]	1
Other on-site activities [PRESENCIAL][Guided or supervised work]	5
Final test [PRESENCIAL][Assessment tests]	1
Study and Exam Preparation [AUTÓNOMA][Self-study]	100
Self-study [AUTÓNOMA][Self-study]	32

Total horas: 224

10. Bibliography and Sources

Author(s)	Title/Link	Publishing house	Citv	ISBN	Year	Description
Berne y Levy	FISIOLOGIA	Mosby			2006	
Despopoulos y Silbernagl	Texto y Atlas de Fisiologia	Mosby			2001	
Fox	Fisiologia Humana	Interamericana			2003	
Fox, Stuart Ira	Fisiología humana /	McGraw-Hill Interamericana,		978-607-15-1151-5	2014	
Guyton, Arthur C.	Tratado de fisiología médica	Elsevier		978-84-8174-926-7	2006	
Levy, Matthew N.	Fisiología	Elsevier		978-84-8174-948-9	2006	
Rhoades y Tanner	Fisiologia Humana	Masson			1997	
Schmidth y Thews	Fisiologia Humana	Interamericana			1993	
Silbernagl, Stefan	Fisiología: texto y atlas	Médica Panamericana		978-84-7903-444-3	2009	
Silverthorn	Fisiologia Humana	Panamericana			2008	
Silverthorn, Dee Unglaub (1948-)	Fisiología humana : un enfoque integrado /	Editorial Médica Panamericana,		978-607-9356-14-9	2014	
Zao, Stabler, Smith, Lokuta, Griff	PhysioEx 9.0	Pearson		978-84-1555-203-1	2012	Simulaciones de laboratorio de Fisiología