

## HUMAN ORGANISM ALTERATIONS: FUNCTIONAL TESTS

MODULE	CONTENT	YEAR	TERM	CREDITS	TYPE
Formation complements: OPTIONAL SUBJECT	Human organism alterations: functional tests	4 <sup>th</sup>	2 <sup>nd</sup>	6 ECTS (4,5 T + 1,5 P)	Optional. 2 groups semivirtuals
<b>LECTURER(S)</b>			<b>Postal address, telephone nº, e-mail address</b>		
<ul style="list-style-type: none"> <li>Miguel Moreno Prieto (T*; P*)</li> <li>Carlos de Teresa Galván (T*; P*)</li> <li>Álvaro Domínguez García (P*)</li> </ul> <p>(T*: Theory; P*: Practice)</p>			Dpt. Physiology, 1st floor, Faculty of Pharmacy. 958243879  <a href="mailto:mgnoreno@ugr.es">mgnoreno@ugr.es</a> ; <a href="mailto:cdeteresa@ugr.es">cdeteresa@ugr.es</a> ; <a href="mailto:dogar@ugr.es">dogar@ugr.es</a>		
<b>DEGREE WITHIN WHICH THE SUBJECT IS TAUGHT</b>			<b>TUTORING</b>		
Degree In Pharmacy			<a href="http://www.ugr.es/~fisiougr/tutorias.php">http://www.ugr.es/~fisiougr/tutorias.php</a>		
<b>PREREQUISITES and/or RECOMMENDATIONS (if necessary)</b>					
It is recommended to have previous basic knowledge (background knowledge of Basic Principles of Chemistry, Physic Applied to Pharmacy, Physic-Chemistry, Human Anatomy and Histology, Structural Biochemistry, Metabolic Biochemistry, Human and Cell Physiology (I and II), Physiopathology. A good standard of English and computer skills are also required.					
<b>BRIEF ACCOUNT OF THE SUBJECT PROGRAMME (ACCORDING TO THE DEGREE ¿???)</b>					
Its study functional tests to evaluate the normal functioning of the systems: Endocrine, Reproductive, Cardiocirculatory, Respiratory, Excretory and Acid-Base Balance Maintenance, Digestive System and Nervous System.					
<b>GENERAL AND PARTICULAR ABILITIES</b>					
<b>GENERIC SKILLS:</b>					
CG10.- To design, to devote and to evaluate reagents, methods and analytical clinical technologies, knowing the basic foundations of the clinical analyses and the characteristics and contents of the judgments of laboratory diagnostics. CG13.- To develop communication and information skills, both oral and written, to treat with patients and users of the					



Center where it recovers his professional activity. To promote the capacities of work and collaboration in multidisciplinary equipments and the related ones to other sanitary professionals.

#### **SPECIFIC SKILLS:**

CE37.- To develop hygienic-sanitary analyses (biochemical, bromatological, microbiological, parasitological) related to the health in general and with the food and environment especially.

CE47.- To know and to understand the structure and function of the human body, as well as the general mechanisms of the disease, molecular, structural and functional alterations, syndromic expression and therapeutic tools to restore the health.

CE49.- To know the analytical Technologies related to diagnosis of laboratory, toxins, food and environment.

#### **OBJECTIVES (EXPRESSED IN TERMS OF EXPECTED RESULTS OF THE TEACHING PROGRAMME)**

The acquired knowledge will allow to know and to differentiate the tests that are realized for the concrete diagnosis of an alteration of the organism. The advantages and disadvantages will be known of each one of these tests as well as the limitations and interpretation of results. The learning, therefore, will allow to determine the test of choice for every alteration. Hereby there complements each other the knowledge acquired in the subjects of Human and Cell Physiology I and the II, Physiopathology and Clinics Physiology and Biochemistry.

#### **DETAILED SUBJECT SYLLABUS**

##### **THEORY PROGRAM (Present Hours)**

##### **BLOQUE 1 ENDOCRINE SYSTEM (3,5 H)**

Thematic Unit 1.- Generalities exploration endocrine system

Thematic Unit 2.- Regulation of corporal liquid volumes: exploration of ADH and aldosterone

Thematic Unit 3.-Exploration of hiperglycemic syndrome: diabetes mellitus

Thematic Unit 4.- Functional exploration of Ca and P metabolism

Thematic Unit 5.- Functional study of growth hormone secretion

Thematic Unit 6.- Thyroid function tests

Thematic Unit 7.- Exploration of cortico-suprarrenal function

##### **BLOQUE 2 REPRODUCTIVE SYSTEM (1,5 H)**

Thematic Unit 1.- Tests to evaluate the male reproductive system

Thematic Unit 2.- Tests to evaluate the female reproductive system

##### **BLOQUE 3 CARDIOCIRCULATORY SYSTEM (5 H)**

Thematic Unit 1.- Functional exploration of cardiac cycle

Thematic Unit 2.- Functional evaluation of cardiac electrical activity: electrocardiogram

Thematic Unit 3.- Functional evaluation of peripheral vascular system

##### **BLOQUE 4 RESPIRATORY SYSTEM (2,5 H)**

Thematic Unit 1.- Study of pulmonary ventilation

Thematic Unit 2.- Study of alveolar-capillary diffusion

##### **BLOQUE 5 EXCRETORY SYSTEM AND ACID-BASE BALANCE (2,5 H)**

Thematic Unit 1.- Functional tests of renal system

Thematic Unit 2.- Tests to evaluate acid-base balance



## BLOQUE 6 DIGESTIVE SYSTEM (2,5 H)

Thematic Unit 1.- Tests to evaluate tube digestive motility

Thematic Unit 2.- Tests to evaluate digestion and absorption

Thematic Unit 3.- Tests to evaluate hepatic function

## BLOQUE 7 NERVOUS SYSTEM (2,5 H)

Thematic Unit 1.- Functional study of nervous system I: exploration, analytical techniques and image analysis

Thematic Unit 2.- Functional study of nervous system II: electrophysiological study of nervous system

### LABORATORY PRACTICE PROGRAM

Practice 1.- Electrocardiography in humans.

Practice 2.- Spirometry in humans. Pulse oximetry.

Practice 3.- Study of metabolic syndrome.

Practice 4.- Indirect calorimetry

### READING

#### FUNDAMENTAL BIBLIOGRAPHY:

- Gil-Nagel A, Parra J, Iriarte J, Kanner AM. Manual de electroencefalografía. McGraw-Hill Interamericana. 1ª ed. en español 2002.
- Gómez J.M., Soler J: "Manual de pruebas funcionales de endocrinología" 1ª edición, Septem ediciones. Oviedo 2002
- Noguer L, Balcells, A.: "Exploración clínica práctica" 27ª edición, Masson. Barcelona 2011

#### COMPLEMENTARY BIBLIOGRAPHY:

- García-Conde, J: "Patología General: Introducción a la medicina clínica" 1ª edición. Ed. Marban. Madrid, 2012
- Harrison: "Principios de Medicina Interna" 18ª edición. Ed. McGraw-Hill-Interamericana, 2012.
- Laso, F, J.: "Patología general: introducción a la medicina clínica" 3ª edición. Ed. Masson, 2015
- Pérez Arellano J.L.: Sisinio De Castro "Manual de Patología General" 7ª edición. Ed. Masson Eselvier. Barcelona, 2013

### RECOMMENDED INTERNET LINKS

#### Nervous system

<http://ineurociencias.ugr.es/>

<http://www.ugr.es/>

[www.bioon.com/bioline/neurosci/course/index.htm](http://www.bioon.com/bioline/neurosci/course/index.htm)

#### Muscular system

[Muscle Physiology - Introduction to Muscle](http://ortho84-13.ucsd.edu/musintro/jump.shtml)

<http://ortho84-13.ucsd.edu/musintro/jump.shtml>

<http://www.biology-pages.info/M/Muscles.html>



### **Breathing system**

[Interpreting Spirometry](http://www.vh.org/Providers/Simulations/Spirometry/InterpSpiro.html) <http://www.vh.org/Providers/Simulations/Spirometry/InterpSpiro.html>

### **Cardiovascular system**

<http://depts.washington.edu/physdx/heart/demo.html>

<http://www.wilkes.med.ucla.edu/Physiology.htm>

<http://www.blaufuss.org/>

### **Digestive system**

[GI TRACT](http://www.pathguy.com/lectures/guts.htm) <http://www.pathguy.com/lectures/guts.htm>

### **Renal system**

[Medical Tests of Kidney Function](http://www.niddk.nih.gov/health/kidney/summary/kidtests/kidtests.htm) <http://www.niddk.nih.gov/health/kidney/summary/kidtests/kidtests.htm>

[Renal Function test](http://student.uq.edu.au/~s004825/d01.htm#Renal%20Function) <http://student.uq.edu.au/~s004825/d01.htm#Renal Function>

<http://www.biology-pages.info/K/Kidney.html>

### **Endocrine system**

[Endocrine Diseases thyroid, parathyroid adrenal and diabetes.](http://www.endocrineweb.com/) <http://www.endocrineweb.com/>

[GraphPad Radioactivity Calculator](http://www.graphpad.com/www/radcalc.htm) <http://www.graphpad.com/www/radcalc.htm>

<http://www.biology-pages.info/H/Hormones.html>

