### SUBJECT GUIDE

**HUMAN ORGANISM ALTERATIONS: FUNCTIONAL TESTS**

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<td>Human organism alterations: functional tests</td>
<td>5th</td>
<td>1st</td>
<td>6 ECTS</td>
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**LECTURER(S)**

- Teresa Nestares Pleguezuelo

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**DEGREE WITHIN WHICH THE SUBJECT IS TAUGHT**

- Licenciatura In Pharmacy

**TUTORING AND MEETING**

- Dr. Nestares Pleguezuelo:
  2nd term: MONDAY AND WEDNESDAY 12.30-14.30

  The lecturers will also answer questions via the SWAD teaching platform.

**PREREQUISITES and/or RECOMMENDATIONS (if necessary)**

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 informatics skills are also required.

**BRIEF ACCOUNT OF THE SUBJECT PROGRAMME (ACCORDING TO THE DEGREE ???)**

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.

**GENERAL AND PARTICULAR ABILITIES**

**GENERIC SKILLS:**

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:

CEM 5.3. - To develop hygienic-sanitary analyses (biochemical, bromatological, microbiological, parasitological) related to the health in general and with the food and environment especially.

CEM 5.5. - To know and to understand the technologies used in the design and evaluation of the preclinical and clinical tests.

CEM 5.12. - 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.

CEM 5.15. - 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

BLOQUE 1 ENDOCRINE SYSTEM
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 hyperglycemic 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
Thematic Unit 1: - Tests to evaluate the male reproductive system
Thematic Unit 2: - Tests to evaluate the female reproductive system

BLOQUE 3 CARDIOCIRCULATORY SYSTEM
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
Thematic Unit 1: - Study of pulmonary ventilation
Thematic Unit 2: - Study of alveolar-capillary diffusion

BLOQUE 5 EXCRETORY SYSTEM AND ACID-BASE BALANCE
Thematic Unit 1: - Functional tests of renal system
Thematic Unit 2: - Tests to evaluate acid-base balance

BLOQUE 6 DIGESTIVE SYSTEM
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**

Thematic Unit I: Functional study of nervous system I: exploration, analytical techniques and image analysis
Thematic Unit II: Functional study of nervous system II: electrophysiological study of nervous system

**LABORATORY PRACTICE PROGRAM**

Practice 1: Electrocardiography in humans.
Practice 2: Spirometry in humans.
Practice 3: Regulation of arterial pressure.
Practice 4: Regulation of acid-base balance

**READING**

**FUNDAMENTAL BIBLIOGRAPHY:**


**COMPLEMENTARY BIBLIOGRAPHY:**


**RECOMMENDED INTERNET LINKS**

**Nervous system**
- Federico Olóriz Institute
  [http://www.ugr.es/](http://www.ugr.es/)
- University of Cornell
  [http://www.cornell.edu/](http://www.cornell.edu/)
- University of Montpellier [http://www.iurc.montp.inserm.fr/cric/audition/](http://www.iurc.montp.inserm.fr/cric/audition/)

**Muscle system**
- Muscle Physiology - Introduction to Muscle
- Muscles
  [http://www.ultranet.com/~jkimball/BiologyPages/M/Muscles.html](http://www.ultranet.com/~jkimball/BiologyPages/M/Muscles.html)
- Physiology and Pharmacology - Simulations
  [http://innovol.sibs.strath.ac.uk/physpharm/sims.shtml](http://innovol.sibs.strath.ac.uk/physpharm/sims.shtml)

**Respiratory system**
- Control of Respiration
  [http://www.healthsystem.virginia.edu/toplevel/home/hame.cfm](http://www.healthsystem.virginia.edu/toplevel/home/hame.cfm)
- Interpreting Spirometry
  [http://www.vh.org/Providers/Simulations/Spirometry/InterpSpire.html](http://www.vh.org/Providers/Simulations/Spirometry/InterpSpire.html)

**Cardiovascular system**
Welcome to CVP - Text & Images http://sprojects.mmip.mcgill.ca/cvp/

**Hematology**

Anemia, Pathophysiology, Classification, Clinical Investigation http://www.neosoft.com/~uthman/anemia/anemia.html
ASH Educational Materials http://www.hematology.org/education/index.html
Basic Hematology http://www.hsc.virginia.edu/medicine/clinical/pathology/educ/innes/text/bHEME.html
Blood Coagulation http://web.indstate.edu/thcme/mwking/blood-coagulation.html#intra
Blood Outline http://www.mc.vanderbilt.edu/histopathology/blood/
Bloodline http://www.bloodline.net/
Hematopathology Index http://www.medlib.med.utah.edu/WebPath/HEMEHTML/HEMEIDX.html#2
HemoSurf http://www.aum.iawf.unibe.ch/vlz/bwl/Haematologie/index.htm
Introduction to Blood Morphology http://car.ha.washington.edu/hemecases/intra/intra.htm
Metal Complex in the Blood http://wnmr.wustl.edu/EduDev/LabTutorials/Hemoglobin/MetalComplexinBlood.html
Pathology, Hematology Procedures http://medic.med.uth.tmc.edu/path/00000288.htm

**Digestive system**

Diagnosis and treatment of chronic liver diseases http://www.cx.unibe.ch/ikp/lab2/index.html
Digestion http://www.sciences.sdsu.edu/Faculty/Paul.Paolini/ppp/lecture24/index.htm
GI TRACT http://www.pathway.com/lectures/guts.htm
Index of Hypertextbooks http://arbl.cvmbs.colostate.edu/hbooks/index.html

**Renal system**

Creatinine Clearance http://home.eznet.net/~webtent/clcreqs.html
Physiology of the Kidney (page 1) http://www.nda.ox.ac.uk/wfsa/html/u09/u09_016.htm
Renal Function test http://student.uq.edu.au/~s004825/c01.htm#Renal Function
The Kidney http://www.ultranet.com/~jkimball/BiologyPages/K/Kidney.html

**Endocrinology**

Endocrine Diseases http://www.mic.ki.se/Diseases/c13.html
GraphPad Radioactivity Calculator http://www.graphpad.com/www/radcalc.htm
Hormone Assays http://yakui.primate.wisc.edu/people/wegner/assay.html
Human Endocrinology http://www.ultranet.com/~jkimball/BiologyPages/H/Hormones.html
Index of Hypertextbooks http://arbl.cvmbs.colostate.edu/hbooks/index.html
Index of -mcdb133-chapter06 http://mentor.lscf.ucsb.edu/mcdb133/chapter06/
SDG - EndoPics diapositivas http://www.bg.ic.ac.uk/sdg/EndoPics/
Steroid hormone metabolism http://matweb.hcuge.ch/matweb/endo/Reproductive_health/Steroid_hormone_metabolism.html