SUBJECT GUIDE Academic year 2018-2019

HUMAN AND CELL PHYSIOLOGY II

MODULE	CONTENT	YEAR	TERM	CREDITS	TYPE
MEDICINE AND PHARMACOLOGY	HUMAN AND CELL PHYSIOLOGY	2st	2st	6 ECTS (4,5 T + 1,5 P)	Obligatory

LECTURER(S)	Postal address, telephone nº, e-mail address
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DEGREE WITHIN WHICH THE SUBJECT IS TAUGHT	TUTORING
Pharmacy	http://www.ugr.es//~fisiougr/tutorias.php

PREREQUISITES and/or RECOMMENDATIONS (if necessary)

Recommendations: to have previous basic knowledge (background knowledge of Chemistry, Anatomy and Histology, Biochemistry, Metabolism, Human and Cell Physiology I
A good standard of English and informatics skills are also required.

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

The contents are divided in: Autonomic Nervous System: peripheral and central organization. Blood and body fluids. Cardiovascular System. Respiratory System. Excretory System. Digestive System. Reproductive System. Thermoregulation. Integumentary System. General adaptation syndrome.

GENERAL AND PARTICULAR ABILITIES

GC9. - To intervene in the activities of promotion of health, prevention of disease, in the individual, familiar and community area with an integral and multiprofessional vision of the process health and disease.

GC13. - To develop skills of communication and information, both oral and written, to deal with patients and users of the center where it is

developed the professional activity. To promote the capacities of work and collaboration in multidisciplinary teams and those related to other sanitary professionals.

GC15. - To recognize the own limitations and the need to support and update the professional competences, giving special importance to the autolearning of new knowledge being based on the scientific available evidence.

EC47. - 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 and therapeutic tools to restore the health.

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

The above mentioned objectives in this area are focus on promote that the future pharmacist acquires knowledge about the functioning of the human organism. To do so:

● Understanding the physiological processes, analyzing their biological meaning, description, regulation and integration at different levels of organization: cell, organ and body systems in health.

● Establish the basis for understanding the physiological adaptation process taking place due to a continuously changing environment.

DETAILED SUBJECT SYLLABUS

Theory program

1. Peripheral organisation of the autonomic nervous system
2. Central organization of the autonomic nervous system
3. Body Fluids. The blood
4. Physiology of the erythrocyte and leukocyte
5. Platelet physiology and hemostasis
6. Functional anatomy of the heart. Myocardial properties. Electrocardiogram.
7. Cardiac cycle. Cardiac output and factors affecting it.
8. Arterial and venous circulation.
9. Capillary and lymphatic circulation.
10. Cardiovascular regulation.
11. Structure-functional morphology of the respiratory system. Mechanical ventilation.
12. Exchange and transport of respiratory gases.
13. Regulation of respiration.
14. Structure and function of the excretory system. The nephron.
15. Mechanisms of urine formation.
16. Regulation of renal function.
17. Regulation of acid-base balance.
18. Functional structure of digestive tract. Gut motility.
19. Composition, function and regulation of digestive secretions.
20. Digestion and absorption.
21. Functions of the male reproductive and hormonal systems
22. Female physiology before pregnancy and female hormones
23. Physiology of fertilization, pregnancy, birth and lactation.
24. Thermoregulation
25. Integumentary system. Physiology of the skin and related structures.
26. General adaptation syndrome

Laboratory practice program

Practice 1. - Microscopy study of cell components of the blood (functional description)
Practice 2. -Cardiovascular Physiology (simulated). Electrocardiogram
Practice 3. - Measurement of arterial blood pressure in humans and its computer simulation.
Practice 4. - Mechanisms of the respiratory system (simulated). Measurement of lung volumes and capacities: spirometry.
Practice 5. - Physiology of the renal system (simulated)
Practice 6. - Physical and chemical processes of digestion (simulated).
Practice 7. - Measurement of glucose uptake. Intestinal perfusion
Practice 8. - Physiology of the Reproductive System: Hormone replacement therapy (simulated)

For each academic year, a selection of the above list will be performed at the physiology laboratory.

READING

Print Books on Physiology

- CORDOBA, A. "Fisiología Dinámica". Barcelona: Ed. Masson, 2003.
- COSTANZO, L. S. "Fisiología". 5ª edición. Barcelona: Elsevier Saunders, 2014.
- DVORKIN, M.A. and CARDINALI, D.P. Best & Taylor: Bases Fisiológicas de la Práctica Médica. 14ª edición. Ed. Médica Panamericana, 2010.
- FOX, S. I. Fisiología Humana. 10ª edición. Aravaca (Madrid): Ed. Mc Graw-Hill-Interamericana, 2008.
- GANONG, W. F. Fisiología médica. 21ª edición. México: Ed. Mc Graw-Hill, 2011.
- GUYTON, A.C. and HALL, J.E. Tratado de Fisiología Médica. 13ª edición. Madrid: Ed. Elsevier, 2016.
- LEVY B. KOEPPEN M, STANTON BA. Berne Levy Fisiología. 6a edición. .Madrid: Elsevier Mosby; 2009.
- PRESTON R.B., WILSON T.E. Fisiología. Series Editor: Harvey Richard A. Lippincott's Illustrated Reviews. Barcelona: Lippincott Williams & Wilkins. 2013
- RHOADES, R. and TANNER, G.A. Fisiología Médica. Barcelona: Ed. Masson, 2003.
- SILBERNAGL, S. " Fisiología. Texto y Atlas". Ed. Médica Panamericana, 2008.
- SILVERTHORN, D. U. "Fisiología Humana. Un enfoque integrado". 5ª edición Ed. Medica Panamericana, 2014.
- TORTORA, G.J. and DERRICKSON, B. Principios de Anatomía y Fisiología. 13ª edición. Méjico: Ed. Médica Panamericana. 2013.
- TRESGUERRES, J.A.F. y otros, Fisiología Humana. 4ª edición. Madrid: Ed. Interamericana-McGraw-Hill, 2010.

Print Journals

- News in Physiological Sciences
- Physiological Review
- Current Advances in Physiol
- Annual Review of Physiology

RECOMMENDED INTERNET LINKS

http://www.the-aps.org/ The American Physiological Society
http://physoc.org/ The Physiological Society
http://www.seccff.org/ Sociedad Española de Ciencias Fisiológicas
http://www.feps.org/ Federación Europea de Sociedades de Fisiología