

HUMAN AND CELL PHYSIOLOGY

MODULE	CONTENT	YEAR	TERM	CREDITS	TYPE
Basic common knowledge	Physiology	1st	2nd	6 ECTS (4,5 T + 1,5 P)	Basic
LECTURER(S)			Postal address, telephone nº, e-mail address		
<ul style="list-style-type: none"> M^a Dolores Yago Torregrosa (T*; P*) Álvaro Domínguez García (T*; P*) Jorge Moreno Fernández (T*) M^a Teresa Nestares Pleguezuelo (P*) Carlos de Teresa Galván (P*) <p>(T*: Theory; P*: Practice)</p>			Dpt. Physiology, 1st floor, Faculty of Pharmacy, Cartuja Campus. 958243879 mdyago@ugr.es , dogar@ugr.es ; jorgemf@ugr.es ; nestares@ugr.es ; cdeteresa@ugr.es		
DEGREE WITHIN WHICH THE SUBJECT IS TAUGHT			TUTORING		
Human Dietetics and Nutrition			http://www.ugr.es/~fisiougr/tutorias.php		
PREREQUISITES and/or RECOMMENDATIONS (if necessary)					
<ul style="list-style-type: none"> To have background knowledge of: Biology, Human Anatomy and Histology, Chemistry. A good standard of English and computer skills are also required. 					
BRIEF ACCOUNT OF THE SUBJECT PROGRAMME (ACCORDING TO THE DEGREE)					
Introduction to General and Cell Physiology. Function of organ systems: nervous, digestive and endocrine systems.					
GENERAL AND PARTICULAR ABILITIES					
GENERAL ABILITIES <ul style="list-style-type: none"> CG2. To develop the profession as for other professionals of the health, acquiring skills to be employed at team 					



- CG3. To recognize the need to support and update the professional competence, giving special importance to the learning, of an autonomous and continued way, of new knowledge, products and skills in nutrition and food, as well as to the motivation for the quality
- CG4. To know the limits of the profession and their competences, identifying, when a treatment is necessary to interdiscipline or the derivation to another professional
- CG5. To realize the communication of an effective way, so much of oral such as written form, with the persons, the professionals of the health or the industry and the mass media, being able to use the technologies of the information and the communication specially the related ones to nutrition and habits of life
- CG29. To acquire the basic training for the investigative activity, being capable of formulating hypothesis, gathering and interpreting the information for the resolution of problems following the scientific method, and understanding the importance and the limitations of the scientific thought in sanitary and nutritional matter.

SPECIFIC ABILITIES

- CE1. To know the chemical, biochemical and biological foundations of application in human and dietetic nutrition
- CE2. To know the structure and function of the human body from the molecular level to the complete organism, in the different stages of the life
- CE26. To know the nutrients, their functions and their metabolic utilization. To know the bases of the nutritional balance and their regulation

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

- To gain knowledge about the functioning of the human organism with the aim of relating nutrition to maintenance of body functions.
- To understand the physiological processes, analyzing their biological significance, description, regulation and integration at the different levels of organization, in health.
- To establish the bases to comprehend the modifications of physiological processes as a form of adaptation to a changing environment.
- To relate concepts to previous knowledge and acquire sufficient basis for subsequent learning.

DETAILED SUBJECT SYLLABUS

THEORETICAL CONTENTS

- Thematic unit 1. Introduction to Physiology.
- Thematic unit 2. Excitability.
- Thematic unit 3. Nerve cells.
- Thematic unit 4. Synaptic transmission.
- Thematic unit 5. General concepts of the physiology of the muscular fibers.
- Thematic unit 6. Structure of the nervous system.
- Thematic unit 7. General principles of sensory physiology.
- Thematic unit 8. Physiology of the taste.
- Thematic unit 9. Physiology of the smell.



- Thematic unit 10. Introduction to the somatovisceral sensibility.
- Thematic unit 11. Introduction to the physiology of vision.
- Thematic unit 12. Introduction to the physiology of hearing and balance
- Thematic unit 13. Peripheral organization of autonomic nervous system.
- Thematic unit 14. Central organization of the autonomic nervous system.
- Thematic unit 15. Nervous system and control of the ingestion and other superior functions.
- Thematic unit 16. Functional structure of the digestive tract. Smooth muscle. Digestive motility.
- Thematic unit 17. Composition, function and regulation of the salivary and gastric secretion.
- Thematic unit 18. Composition, function and regulation of the pancreatic secretion.
- Thematic unit 19. Composition, function and regulation of the biliary and intestinal secretions.
- Thematic unit 20. Digestion and absorption.
- Thematic unit 21. General organization of the endocrine system and neuroendocrine integration.
- Thematic unit 22. Physiology of the thyroid gland.
- Thematic unit 23. Hormonal regulation of growth.
- Thematic unit 24. Hormonal regulation of the metabolism of calcium and phosphate.
- Thematic unit 25. Physiology of the endocrine pancreas.
- Thematic unit 26. Physiology of the adrenal gland.
- Thematic unit 27. Hormonal regulation of ion and water balance.

LABORATORY PRACTICE PROGRAM

- Practice 1. Functional anatomy of human body.
- Practice 2. Gustatory and olfactory receptors.
- Practice 3. Endocrine system. Effect of thyroxine, TSH and propylthiouracil on basal metabolism.
- Practice 4. Determination of the glycemic profile.
- Practice 5. Physico-chemical processes of digestion.
- Practice 6. Measurement of intestinal glucose absorption in vivo: Intestinal perfusion.

READING

CORE BIBLIOGRAPHY

Textbooks

- Cordova A. "Fisiología dinámica". Masson, 2003.
- Costanzo, L. S. "Fisiología". 5ª edición. Elsevier Saunders, 2014.
- Drucker Colin R. "Fisiología médica". El Manual Moderno, 2006.
- Dvorkin MA, Cardinali DP, Lermoli R. "Best & Taylor: Bases fisiológicas de la práctica médica". 14ª ed. Editorial Médica Panamericana, 2010.
- Fox SI. "Fisiología humana". 14ª ed. McGraw-Hill-Interamericana, 2017.
- Barrett KE y otros. "Ganong Fisiología médica". 25ª ed. McGraw-Hill, 2017.
- Hall JE. "Guyton & Hall Tratado de Fisiología médica". 13ª ed. Elsevier, 2016.
- Hall JE. "Guyton & Hall Compendio de Fisiología médica". 13ª ed. Elsevier, 2016.
- Hall JE. "Guyton & Hall Repaso de Fisiología". 3ª ed. Elsevier, 2016.
- Koeppen BM, Stanton BA. "Berne y Levy Fisiología". 6ª ed. Elsevier-Mosby, 2009.
- Martín Cuenca E. "Fundamentos de Fisiología". Thompson, 2006.
- Pocock G, Richards CD. "Fisiología humana. La base de la Medicina". 2ª ed. Masson, 2005.



- Preston R.B., Wilson T.E. "Fisiología". Series Editor: Harvey Richard A. Lippincott's Illustrated Reviews. Barcelona: Lippincott Williams & Wilkins. 2013.
- Rhoades RA, Bell DR. "Fisiología Médica". 4ª ed. Lippincott Williams-Wilkins, 2012.
- Silbernagl S, Despopoulos A. "Fisiología. Texto y atlas". 7ª ed. Editorial Médica Panamericana, 2009.
- Silverthorn DU. "Fisiología humana", 6ª ed. Editorial Médica Panamericana, 2014.
- Stanfield CL. "Principios de Fisiología Humana", 4ª ed. Pearson, 2011.
- Thibodeau GA, Patton KT. "Estructura y función del cuerpo humano". 15ª ed. Elsevier, 2016.
- Tortora GJ, Derrickson B. "Principios de Anatomía y Fisiología". 13ª ed. Editorial Médica Panamericana, 2013.
- Tresguerres JAF y otros. "Fisiología humana". 4ª ed. Interamericana-McGraw-Hill, 2010.
- Tresguerres JAF, López-Calderón A, Villanúa MA. "Anatomía y Fisiología del cuerpo humano". 1ª ed. McGraw-Hill, 2009.

FURTHER READING

Textbooks (specific bibliography)

- Alberts B y otros. "Introducción a la Biología celular". 3ª ed. Editorial Médica Panamericana, 2011.
- Bear MF y otros. "Neurociencia. La exploración del cerebro". 4ª ed. Wolters-Kluwer, 2016.
- Cursos CRASH. "Lo esencial en Sistema nervioso". 2ª ed. Elsevier, 2004.
- Cursos CRASH. "Lo esencial en Aparato digestivo". 4ª ed. Elsevier, 2014.
- Cursos CRASH. "Lo esencial en Endocrinología". 4ª ed. Elsevier, 2013.

Dictionaries and atlases

- Diccionario médico ilustrado. Marban, 2015.
- Diccionario médico ilustrado de bolsillo. Marban, 2015.
- Junqueira LC, Carneiro J. "Histología básica. Texto y atlas". 12ª ed. Editorial Médica Panamericana, 2015.
- Netter, FH. "Atlas de Anatomía Humana". 5ª ed. Masson, 2011.

Periodical publications (journals)

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

Lab manuals

- Amitrano R, Tortora G. "Anatomy & Physiology Laboratory Manual". 7ª ed. revisada. Cengage Learning, 2012.
- IUPS (International Union of Physiological Sciences. Commission on Teaching Physiology). A source book of practical experiments in physiology requiring minimal equipment. World Scientific, 1991.
- Marieb EN, Mitchell SJ. "Human Anatomy and Physiology Lab Manual", 8ª ed. Benjamin Cummings, 2007.
- Ortiz JM. "Casos prácticos y problemas de Fisiología". Síntesis, 2000.
- Suckow MA, Weisbroth SH, Franklin CL. "The laboratory rat". Academic Press, 2006.
- Varios. Cuaderno de Prácticas de Fisiología Celular y Humana. Departamento de Fisiología. Facultad de Farmacia. Universidad de Granada. 2005.



Computer simulations

- Stabler T y otros. PhysioEx 6.0 para fisiología humana. Simulaciones de laboratorio de Fisiología. Pearson. Addison Wesley, 2006.

RECOMMENDED INTERNET LINKS

WEB RESOURCES

http://www.nlm.nih.gov/research/visible/visible_human.html Visible human project
<http://www.vivo.colostate.edu/hbooks/pathphys/digestion/> Digestive Physiology
<http://www.tiroides.net> Information and support for the patient with thyroid disease
<https://www.hhmi.org/biointeractive/neuroscience-collection> Neuroscience, a rich variety of videos, interactive modules, and animations to teach about the nervous system
<http://www.physiologyweb.com/> Physiology Web
http://www.mhhe.com/biosci/ap/vander8e/student_index.mhtml Get Body Smart: An online examination of human anatomy & physiology

SCIENTIFIC SOCIETIES

<http://www.the-aps.org/> The American Physiological Society
<http://physoc.org/> The Physiological Society
<http://www.secf.es/> Spanish Society of Physiological Sciences
<http://www.feps.org/> Federation of European Physiology Societies

