# HUMAN AND CELL PHYSIOLOGY I

<table>
<thead>
<tr>
<th>MODULE</th>
<th>CONTENT</th>
<th>YEAR</th>
<th>TERM</th>
<th>CREDITS</th>
<th>TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEDICINE AND PHARMACOLOGY</td>
<td>HUMAN AND CELL PHYSIOLOGY</td>
<td>2nd</td>
<td>1st</td>
<td>6 ECTS</td>
<td>Obligatory</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(4,5 T + 1,5 P)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LECTURER(S)</th>
<th>Postal address, telephone n°, e-mail address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Juan Llopis González (T*; P*)</td>
<td>Dpt. Physiology, 1st floor, Faculty of Pharmacy. 958243879</td>
</tr>
<tr>
<td>María López-Jurado (T*; P*)</td>
<td><a href="mailto:illopis@ugr.es">illopis@ugr.es</a>; <a href="mailto:mlopezj@ugr.es">mlopezj@ugr.es</a>; <a href="mailto:iijoh@ugr.es">iijoh@ugr.es</a>;</td>
</tr>
<tr>
<td>Julio J. Ochoa Herrera (T*; P*)</td>
<td><a href="mailto:crissg@ugr.es">crissg@ugr.es</a>; <a href="mailto:rosariomz@ugr.es">rosariomz@ugr.es</a>; <a href="mailto:liquiles@ugr.es">liquiles@ugr.es</a>;</td>
</tr>
<tr>
<td>Cristina Sánchez González (T*; P*)</td>
<td><a href="mailto:nestares@ugr.es">nestares@ugr.es</a>; <a href="mailto:javierdc@ugr.es">javierdc@ugr.es</a>; <a href="mailto:irusanova@ugr.es">irusanova@ugr.es</a>;</td>
</tr>
<tr>
<td>Rosario Martínez Martínez (T*; P*)</td>
<td><a href="mailto:alvarela@ugr.es">alvarela@ugr.es</a>; <a href="mailto:imporres@ugr.es">imporres@ugr.es</a>;</td>
</tr>
<tr>
<td>José Luis Quiles Morales (T*)</td>
<td><a href="mailto:lourdesherrera@correo.ugr.es">lourdesherrera@correo.ugr.es</a></td>
</tr>
<tr>
<td>Mª Teresa Nastares Pleguezuelo (T*)</td>
<td></td>
</tr>
<tr>
<td>Javier Díaz Castro (T*)</td>
<td></td>
</tr>
<tr>
<td>Iryna Rusanova (T*)</td>
<td></td>
</tr>
<tr>
<td>Alfonso Varela López (T*)</td>
<td></td>
</tr>
<tr>
<td>Jesús M. Porres Fouque (P*)</td>
<td></td>
</tr>
<tr>
<td>Lourdes Herrera Quintana (P*)</td>
<td></td>
</tr>
</tbody>
</table>

(T*: Theory; P*: Practice)

## DEGREE WITHIN WHICH THE SUBJECT IS TAUGHT
Pharmacy

## TUTORING
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. A good standard of English and informatics skills are also required.

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

## 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**

Subject 1. - Introduction to Physiology
Subject 2. - Functional organization of the cell. Plasma membrane
Subject 3. - Transport across the plasma membrane
Subject 4. - Excitability
Subject 5. - Nerve cells
Subject 6. - Synaptic transmission
Subject 7. - The muscle fiber
Subject 8. - General structure of the nervous system
Subject 9. - General physiology of receptors
Subject 10. Somato-visceral sensitivity
Subject 11. Physiology of vision
Subject 12. Physiology of hearing and balance
Subject 13. Physiology of taste and smell
Subject 14. Control of motor activity I. Motor function in the spinal cord and brainstem
Subject 15. - Control of motor activity II. Motor function in the cerebellum, basal ganglia and cortex
Subject 16. - Higher functions of the nervous system
Subject 17. General organization of the endocrine system
Subject 18. Neuroendocrine integration
Subject 19. Thyroid physiology
Subject 20. Hormonal regulation of metabolism calcium/phosphorus
Subject 21. Hormonal regulation of growth
Subject 22. Physiology of the endocrine pancreas
Subject 23. Physiology of the adrenal gland
Subject 24. Hormonal regulation of water-salt balance

Laboratory practice program

Practice 1. Detailed functional study of different organs and body systems models
Practice 2. Transport mechanisms and cell permeability (computer simulation)
Practice 3. Neurophysiology of nerve impulses (computer simulation)
Practice 4. Gustatory and olfactory receptors.
Practice 5. Skeletal Muscle Physiology (simulated).
Practice 6. Effect of thyroxine on the basal metabolism (computer simulation)
Practice 7. Control of blood glucose. Determining the blood glucose curve

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

READING

Print Books on Physiology


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