# Human Physiology

## Module Content

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<th>Module</th>
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<td>Basic common knowledge</td>
<td>Physiology</td>
<td>2nd</td>
<td>1st</td>
<td>6 ECTS (4,5 T + 1,5 P)</td>
<td>Basic</td>
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## Lecturers

- Héctor Vázquez Lorente (T*; P*)
- Mª Dolores Yago Torregrosa (T*)
- Alfonso Varela López (T*)
- Iryna Rusanova (P*)
- Lourdes Herrera Quintana (P*)
- José Manuel Romero Márquez (P*)

(T*: Theory; P*: Practice)

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## Degree Within Which the Subject Is Taught

Human Dietetics and Nutrition

## Tutoring


## Prerequisites and/or Recommendations (if necessary)

- To have background knowledge of Chemistry, Human Anatomy and Histology, Structural Biochemistry, Metabolic Biochemistry, Human and Cell Physiology.
- A good standard of English and computer skills are also required.

## Brief Account of the Subject Programme (According to the Degree)


## General and Particular Abilities

### General Abilities
• 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. Body Fluids. The blood.
• Thematic unit 2. Physiology of the erythrocyte and leukocyte.
• Thematic unit 3. Platelet physiology and hemostasis.
• Thematic unit 4. Functional anatomy of the heart. Myocardial properties. Electrocardiogram.
• Thematic unit 5. Cardiac cycle and output.
• Thematic unit 6. Arterial and venous circulation.
• Thematic unit 7. Capillary and lymphatic circulation.
- Thematic unit 8. Cardiovascular regulation.
- Thematic unit 11. Regulation of respiration.
- Thematic unit 12. Functional morphology of the urinary system. The nephron.
- Thematic unit 14. Regulation of urinary function.
- Thematic unit 15. Regulation of the acid-base balance.
- Thematic unit 16. Functions and hormonal regulation of the male reproductive system.
- Thematic unit 17. Female physiology before pregnancy and female hormones.
- Thematic unit 18. Physiology of fecundation, pregnancy, childbirth and lactation.
- Thematic unit 19. Skeletal muscle physiology.
- Thematic unit 20. Control of motor activity I. Motor functions of the spinal cord and brainstem.
- Thematic unit 21. Control of motor activity II. Motor functions of the cerebellum, basal ganglia and cortex.
- Thematic unit 22. Regulation of body temperature.
- Thematic unit 23. Integumentary system. Physiology of the skin and related structures.

LABORATORY PRACTICE PROGRAM

- Practice 1. Microscopic study of blood cellular components (functional description).
- Practice 4. Electrocardiogram at rest.
- Practice 5. The acid-base balance (computer simulation).

READING

CORE BIBLIOGRAPHY

Textbooks

- Martín Cuenca E. "Fundamentos de Fisiología". Thompson, 2006.
FURTHER READING

Textbooks (specific bibliography)


Dictionaries and atlases


Periodical publications (journals)

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

Lab manuals


**Computer simulations**


**RECOMMENDED INTERNET LINKS**

**WEB RESOURCES**

http://muscle.ucsd.edu/musintro/Jump.shtml  Skeletal muscle Physiology
https://www.hhmi.org/biointeractive/cardiology-virtual-lab  Cardiology virtual lab
https://www.nobelprize.org/educational/medicine/ecg/  Electrocardiogram
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