

26763 - Physiology II

Syllabus Information

Academic year: 2024/25

Subject: 26763 - Physiology II

Faculty / School: 104 - Facultad de Medicina

229 - Facultad de Ciencias de la Salud y del Deporte

Degree: 304 - Degree in Medicine

305 - Degree in Medicine

ECTS: 6.0

Year: 1

Semester: Second semester

Subject type: Basic Education

Module:

1. General information

This subject provides knowledge of the functioning and regulation of the renal and blood systems, and the role of immunity in human health.

Their knowledge allows the necessary integration to understand human physiological processes, their alterations and the mechanisms of immunodiagnostic and immunotherapy techniques.

These approaches are aligned with the Sustainable Development Goals of the United Nations 2030 Agenda (<https://www.un.org/sustainabledevelopment/es/>), their learning results provide training and competence to contribute to some extent to their objectives: 3. Health and wellness, 4. Quality education and 5. Gender equality.

2. Learning results

The student, in order to pass this subject, must demonstrate the following results:

- 1-To know and describe the hydroelectrolytic homeostasis, as well as the possible situations of acid-base equilibrium and the components of the buffering systems in human biological fluids.
- 2-To know and describe the regulation of homeostasis by the kidneys.
- 3-To describe the mechanisms involved in renal function (hemodynamics, glomerular filtration, reabsorption, and tubular secretion)
- 4-To know and describe the renal management of water, ions, urea and creatinine, and their regulation.
- 5-To interpret the main renal function tests.
- 6-To know the mechanisms of urination, as well as its regulation.
- 7-To know the characteristics and functions of the inorganic, organic and gaseous components of blood.
- 8- To know and describe the cellular and subcellular components of blood: types, characteristics, genesis (requirements and regulation) and functions.
- 9-To know and describe the components, mechanisms and regulation of blood coagulation.
- 10-To improve the reflective capacity on physiological processes from situations of health and disease.
- 11-To draw blood and perform simple blood and urinary parameters analysis.
- 12-To know the structure of the immune system in the whole economy of the organism.
- 13-To understand the biological role of the immune system.
- 14-To have the ability to identify the components of the immune system.
- 15-To distinguish between innate and adaptive response.
- 16-To acquire concepts on the development, maturation and senescence of the immune system.
- 17-To be informed about methods for the evaluation and manipulation of immune system activity.

3. Syllabus

- 1-Homeostasis and renal function. Filtration, reabsorption and secretion processes. Renal clearings.
- 2-Balance, distribution and regulation of: sodium, chloride, potassium, calcium, and phosphorus.
- 3-Renal regulation of acid-base balance.
- 4-Functions of the urinary tract.
- 5-Blood and plasma: characteristics and functions.

- 6-Hematocytes: characteristics and functions. Erythrocyte antigens. Erythropoiesis. Iron metabolism.
- 7-Leukocytes: types, leukopoiesis. Leukocyte formula.
- 8-Hemostasis: platelets, blood coagulation, fibrinolysis. Functional tests of coagulation and haemostasis.
- 9-Structure and organization of the immune system.
- 10-Innate immunity. Cells and soluble factors.
- 11-Adaptive immunity. B lymphocytes and immunoglobulins.
- 12-HLA system and antigenic presentation.
- 13-T-lymphocyte: types and main functions.
- 14-Immune tolerance.

4. Academic activities

It is a subject of a plan in extinction and has no teaching activity.

Enrolled students are recommended to contact those responsible for the subject at the beginning of the course to establish a study plan and learn about the evaluation criteria.

5. Assessment system

The subject will be evaluated through

- 80% of the grade: a multiple choice exam of 60 questions, on the entire program (20 questions from each content block). The chance factor will be discounted, but not the failed answers. They will be approved with a grade of 5 out of 10.
- 20% of the grade: short question questionnaire.

6. Sustainable Development Goals

- 3 - Good Health & Well-Being
- 4 - Quality Education
- 5 - Gender Equality