



Universitat de Lleida

DEGREE CURRICULUM
HUMAN PHYSIOPATHOLOGY

Coordination: GALINDO ORTEGO, FRANCISCO JAVIER

Academic year 2023-24

Subject's general information

Subject name	HUMAN PHYSIOPATHOLOGY			
Code	101509			
Semester	1st Q(SEMESTER) CONTINUED EVALUATION			
Typology	Degree	Course	Character	Modality
	Bachelor's Degree in Biomedical Sciences	2	COMPULSORY	Attendance-based
Course number of credits (ECTS)	9			
Type of activity, credits, and groups	Activity type	PRAULA		TEORIA
	Number of credits	3.6		5.4
	Number of groups	2		1
Coordination	GALINDO ORTEGO, FRANCISCO JAVIER			
Department	MEDICINE AND SURGERY			
Important information on data processing	Consult this link for more information.			

HUMAN PHYSIOPATHOLOGY 2023-24

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Learning objectives

Acquire a rational, complete and integrated understanding of the mechanisms of functioning of the human body in a state of health.

- Understand and apply the instrumental methods and techniques that are applied in experimental and assistive medicine.
- Understand the scientific foundations of pathophysiology and pharmacology.
- **Apply theoretical knowledge** to the resolution of physiological problems

Competences

- CB1.- Understand the knowledge acquired in a professional bibliography and other resources in the same field.
- CB2.- Know how to apply knowledge in a professional way and have the skills to develop and defend arguments and know how to solve problems in their field of study knowledge in a professional way
- CB24.- the basics of the disease and the most prevalent human pathologies.
- CB25.- Know the terminology and medical language used in clinical practice
- CB26.- Knowing how to interpret a normal analysis
- CB40.- Know the methods of diagnosis and study of genetic variation
- CB41.- Know how to obtain and process a biological sample for study using different diagnostic procedures
- CB42.- Know and understand the most common parameters used in the description of the main diagnostic tests of the laboratory

Subject contents

Human Physiopathology (Biomedicine) English .

Introduction

* 1.-Course presentation.

* 2.-Concepts of health and disease. Concepts related to impaired health. Non-specific forms of organic response: inflammation, pain, fever...

Thematic 1.

1.-Basic functions.

1.1.-a) digestion/c) reproduction

1.2. Immunology system a) immunology/b) haematology

1.3.-Breathing

1.1. A-digestion/excretion.-

1. Concept and physiopathology of oesophagus-gastro-intestinal transit concept of motility and secretion

2. The concept of diarrhea. Physiopathology of diarrhea and types of diarrhea

3.-Concept of malabsorption and maldigestion and its analytic alterations concept and physiopathology of constipation

4.-Analytical interpretation of hepatitis. Concept and interpretation of hepatic serologies concept and physiopathology of cirrhosis and hepatic insufficiency

5.-Physiopathology of biliary and pancreatic function concept of cholelithiasis and coledocolithiasis concept and analysis of pancreatitis and its types

Seminars.-

-Seminar 9. Algorithm diagnostic and interpretation of the proofs of malabsorption (2 hours).-

-Seminar 10. Diagnostic algorithm and interpretation of tests for the study of cholestasis (2 hours).-

1.1. B.-EXCRETION/renal function

1. General concepts of renal function. Renal blood flow and its regulation. Glomerular filtration and its regulation. Transport mechanisms throughout the Nephron. Mechanisms of urine concentration

2. Hydroelectrolytic balance. Osmolarity Disorders of organic liquids: water and sodium. Alterations in potassium metabolism and base acid balance. Alterations in the metabolism of calcium and phosphorus

3. Physiopathological mechanism of acute and chronic renal failure

4. Kidney hormonal function and disorders derived from their alterations: anemia, hyperparathyroidism and alterations of the renin-angiotensin-aldosterone system

Seminar 13: Methods of measurement of the glomerular and mineral metabolism disorders.

1.1. C.-Reproductive physiopathology

Theme

1.-Genital cycle physiology

The physiopathology of the genital cycle

2.-Physiology of pregnancy (placental and fetal)

3.-The physiopathology of pregnancy.

4.-Physiology of the climacterium. Menopause.

5.-Climate physiopathology

SEMINAR 15.-EMBRYOLOGY

1.1.d.- Physiopathology of male reproductive system .

1.2. A.-infection, inflammation and immunity

- 1.-Immune response to the infection
- 2.-Autoimmunity hypersensitivity reactions
- 3.-Immunodeficiency: generalities and evaluation
- 4.-Acquired immunodeficiency syndrome

Seminars.-

.-Seminar 1. Interpretation of the autoantibodies in the laboratory

Seminar 2. Tuberculosis

1.2. B.-hematopoietic function. and hematologic cells:

- 1 hematopoietic system and Physiopathology of Hematopoiesis
- 2 Physiopathology of platelets and hemostasis. Thrombocytopenia and Thrombocytosis. Coagulation disorders
- 3 red blood cell disorders. Physiopathology of anemia and other disorders
- 4 white blood cells and lymphoid tissues. Physiopathology of the Leukocyte series. Neoplastic and non-neoplastic disorders of white blood cells

Seminars.-

-Seminar 3 The laboratory in Haematology I

. Seminar 4 The Laboratory in Haematology II

Practice 1.-the Laboratory in haematology (2 hours)

1.3.-Respiratory function.

- 1 Physiopathology of the respiratory system. Revision of respiratory physiology.
- 2.-Regular explorations in respiratory assessment: functional respiratory tests.
- 3 main respiratory disorders: Acute respiratory failure and chronic systemic impact of hypoxia and hypercapnia: molecular, tissue and systemic mechanisms of tobacco affectation.
- 4 Respiratory Diseases: asthma, EPOC, Bronchiectasia, interstitial diseases. Respiratory infections. Pathophysiology of acute obstruction of the airway. Physiopathology of chronic obstruction in air flow. Concept of "functional limitation". Effect on quality of life.
- 5 Other respiratory diseases: SAOS, cancer, lung involvement for extrapulmonary diseases: conectivopatías, etc..... Pulmonary transplantation.

Thematic 2.

-Control Systems "

2.1.-Cardio-Vascular.

2.2.-Endocrine and nutrition

2.1.-Cardiovascular function

1-Introduction to the pathology of Cardiovascular locomotor

2.-The sintoms and signs of the cardiovascular diseases

3.-Physiology of aterothrombotic disease and the presentation of clinical sickness coronary

4.-Physiopathology and principales clinics of the heart Insuficiencia

5.-Physiopathology of the arterial press and principales consequences

Seminars.-

--The basic physical exploration of the cardiovascular sistem .

--Principles of electrocardiography and basic records.

-Technical

Endocrine and nutritional function.

1 Introduction to the endocrine system : Concept of hormone. Regulation of hormonal secretion and feedback mechanisms. Functioning of the hypothalamic-pituitary-peripheral gland axes.

2 Alterations of the hypothalamic-pituitary system. Alterations in the secretion of pituitary adenophysis hormones. Growth alterations. Alterations in the secretion of antidiuretic hormone. Alterations of the adrenals. Excess and deficiency of cortisol. Aldosterone excess and deficiency. Catecholamines.

3 Regulation of thyroid hormones. Hyperthyroidism. Hypothyroidism. Thyroid nodules

4 Alterations in the metabolism of carbohydrates and lipids. Regulation of glycemia levels. Diabetes mellitus. Insulin resistance. Other alterations of the endocrine pancreas. Alterations in lipid metabolism

Functions of lipoproteins. Dyslipidemia

5 Pathophysiology of nutrition. Immediate principles, minerals, trace elements and vitamins. Concept of balanced diet. Malnutrition. Obesity

.- Seminar 11. Glycemic control measures. Capillary glycemia, glycated hemoglobin. Fundamentals, applications and utility. Diagnostic tests.-

Seminar 12. Prognostic markers in thyroid cancer

Thematic 3.

3.- Relationship systems

3.1.-Nervous system

3.2.-The senses ; Communication

3.3.-Static and movement (link it with locomotor)

3.4.- Skin phspathology

3.1.- Nervous function / relationships

1 Bases of functional neuro-anatomy Knowledge of the main structures of the nervous system o Knowledge of the main functions of the nervous system

2 Cerebrovascular disease (o Pathophysiology of ischemic stroke: from arterial collusion to neuronal death o Epidemiology o Arterial circulation and clinical vascular sd o Pathophysiology of cerebral haemorrhage

3 Dementia or Pathophysiology of dementia

4 Motor joint diseases) o Pathophysiology of the main diseases of the motor union o Epidemiology or Systematology

5 Demyelinating diseases o Pathophysiology of CNS demyelinating diseases o Epidemiology o Systemology o Diagnosis

3.2.- The senses.- Relationships

1.- Disorders of hearing functions and balance.

2.- Pathophysiology of smell, taste

3.- Visual function disorders

4.- Voice and communication

3.3.- Static and Movement.

1.- Disorders of postural statics. Balance.

2.- Pathophysiology of locomotion and sport

Seminar.- Discussion of the usefulness of biomarkers in the main neurological diseases and transcranial ultrasonographic study

Practice 2.- Audiological and balance cabinet practices in the cabinet of auditory and balance explorations in the exploratory cabinet of the hospital

3.4.- Pathophysiology of the skin

10.1. Main functions of the skin. Concept of acute skin insufficiency

Thematic 4

Clinical Research

Research in medicine

1.- Research in medicine and clinical practice. Ethical and legal aspects. Contribution from Biomedicine. Ethics and Research Committees

2.- Clinical trials.

Methodology

Master class in large group (complete class). Theoretical training in class according to attached syllabus

Medium Group Seminars (50%) To deepen the subject, to distribute knowledge in groups and to make the student's participation greater.

Practice in small group (25%). Ensure training, improve relationship, ensure participation..

To achieve objectives and acquire the competences attributed the following activities are programmed:

Classes. (MC)

These will be done with all students

They aim to give an overview of the thematic content highlighting those aspects that will be useful in their training as Biometges.

Seminars. (Sem)

These will be made with 1/2 students, are compulsory and must be done with the corresponding group. Each group will be subdivided into 5 working groups that will always be integrated

Students themselves.

The seminars are aimed at allowing students to apply the theoretical concepts and to deepen these most relevant and complex aspects of the subjects.

Virtual activities. Av

These activities will be performed on the UdL virtual Campus (Sakai) and the Innovacampus self-assessment platform.

Taking advantage of this space, students will carry out different activities related to the preparation of thematic content, the application of concepts, teamwork and work.

Nowadays we can use this tool (Sakai) for made synchronical activities or others , even exams.

Tutorials. Tut

These will be made with 1/2 students, are compulsory and must be done with the assigned group. It is an activity

that will be held as a closure of a thematic group. You will

To make a sharing of the thematic contents, orient the learnings avoiding the

Dispersing, clarifying doubts and establishing a conceptual diagram.

Laboratory practices. (PL).

These will be performed with 1/2 students, are obligatory. Students who do not 90% of the internship will not be evaluated.

The laboratory practices aim for students to familiarise themselves with basic microscopy techniques, learn how to use the microscope, know the different types of microscopes and their use, appear to prepare samples, which The microscope and recognise the materials .

Development plan

Master class in large group (complete class). Theoretical training in class according to attached syllabus

Medium Group Seminars (50%) To deepen the subject, to distribute knowledge in groups and to make the student's participation greater.

Practice in small group (25%). Assure training, improve relationship, ensure participation.

Evaluation

learning Evaluation

Theory.- 90% test evaluations

Seminars and Practices .- 10% practical evaluation

Presentatios (Ppt) and assessments .- continous evaluations.

Bibliography

1. Fisiopatología. Salud-enfermedad: un enfoque conceptual. Porth. 7ma edición. . Editorial Médica Panamericana.
2. La Fisiopatología como Base Fundamental del Diagnóstico Clínico. *Gutiérrez Isaura*. 2011. Editorial Médica Panamericana.
3. Medicina Interna. *Cecil – Ferreras – Harrison*. (Cualquier edición que no supere los 10 años)
- 4- Fisiopatología: Un enfoque clínico. *Braun, Carie – Anderson, Cindy*. Segunda Edición 2012. Editorial Wolters Kluwer.
- 5.- Introduccion a la medicina clinica 2º edición . . *Fjavier Laso* . ED elsevier/Masson .
- 6.- Fisiopatología y patología general básicas para ciencias de la salud. 2 edition. *Juan Pastrana Delgado* publicación :05/2023ED elsevier/Masson
- 7.-Fisiopatología general. [M. I. Lorenzo, F. Simón, F. Gómez, B. Hernández](#). Ed Altamar 2022.