

GENERAL PATHOLOGY AND CLINICAL DIAGNOSTIC METHODOLOGY (PH000023)

1. language

Italian

2. course contents

Coordinator: Prof. MARINO MARIAPAOLA

Academic Year: 2022/2023

Year Course: 3

Semester: I

UFC: 10

Modules and lecturers:

- PATOLOGIA GENERALE (PH000024) - 8 UFC - SSD MED/04

Prof. Mariapaola Marino

Prof. Simona Serini

Prof. Valentina Trapani

- METODOLOGIA CLINICO DIAGNOSTICA (PH000025) - 2 UFC - SSD MED/09

Prof. Roberto Pola

Prof. Eleonora Gaetani

3. bibliography

Metodologia clinico diagnostica: the reference bibliographic material will be indicated by the Teachers at the beginning of the lectures of this module.

Patologia generale

-Pontieri – Elementi di Patologia generale, IV Edizione PICCIN 2018.

-Parola – Patologia generale ed Elementi di Fisiopatologia, II Edizione, EdiSES 2020

-Robbins & Cotran. Le basi patologiche delle malattie. Patologia generale, X Edizione, EDRA 2015

The student must have a General Pathology text chosen among those recommended or another text after the approval of the Teachers.

4. learning objectives

The Course includes the module of *Patologia generale*, which analyses the morphological and functional modifications that induce alterations in biological balance (homeostasis) and which constitute the basis of diseases. It examines the causes (etiology) responsible for different diseases, the mechanisms (pathogenesis) by which a disease arises and evolves and the changes in the functioning of the large homeostatic systems, organs and systems affected by the disease.

The module of *Metodologia clinico-diagnostica* aims to provide students with the basics of the clinical and diagnostic approach to the major general (internal) pathologies and highlight the fundamentals of clinical reasoning.

Knowledge and understanding - (Dublin 1): At the end of the course the student must demonstrate knowledge of the concepts of health and disease in general, the underlying causes of

cellular and molecular damage, the mechanisms of disease in general, degenerative processes, reactive and neoplastic; the physiopathology of some systems and apparatuses. They must also demonstrate knowledge of the methodologies underlying the clinical and diagnostic approach to diseases, with particular attention to the medical history, physical examination, and interpretation of the main diagnostic tests. Finally, he must demonstrate that he has understood the characteristic clinical pictures of the pathologies covered by the teaching course.

Applied knowledge and understanding - (Dublin 2): At the end of the Course students must demonstrate that they can apply the knowledge acquired to understand how the basic pathological processes alter the functions of organs and systems and mediate the transition from cell and tissue damage to the disease. They must also demonstrate their skill to apply the acquired knowledge to distinguish the main clinical pictures and start a diagnostic process, according to the criteria of correct clinical reasoning.

Autonomy of judgment - (Dublin 3) At the end of the Course students must demonstrate that they can integrate the knowledge and skills learned to identify the clinical signs of diseases and to be able to guide patient as far as Pharmacy graduates are concerned.

Communication skills - (Dublin 4) At the end of the Course the student must be able to communicate the knowledge acquired using adequate and precise terminology, to be able to express concepts clearly and without ambiguity to both experts and non-experts in the subject.

Ability to learn - (Dublin 5): At the end of the Course the student must have learned a more autonomous method of study and updating, referring to several texts and / or a bibliography obtained through his own research on web platforms for access to medical literature- scientific.

5. PREREQUISITES

To understand the Course contents, notions of Physics, General and Organic Chemistry, Biochemistry, Anatomy, Histology, Biology, and Physiology are required.

6. teaching methods

Topics of lessons will be scheduled in detail and the calendars will be made available to students at the beginning of the semester. Teaching is organized through lectures with the support of slides and videos as tools to support teaching. The bibliography of the images / tables / texts not taken from the recommended texts will be indicated so as any useful links to other contents that students can easily and independently find thus becoming able to search with a higher degree of autonomy. During the lessons there is a constant active involvement of the students through questions addressed to them on the topics. Furthermore, students are invited to freely ask the teachers questions for clarification. The constant teacher-student dialogue aims to improve the achievement of the student's knowledge and communication skills and their autonomy of judgment.

Teaching methods could be adapted to the occurrence of a Covid-19 emergency and the indications provided by the central Government and the Academic Authorities.

Teaching methods used and knowledge and understanding - (Dublin 1): The teaching methods used allow the student to acquire knowledge that enables them to understand:

- a) how the underlying pathological processes can alter the functions of the organs and systems and mediate the transition from cell and tissue damage to disease of the organism;
- b) what are the methodologies underlying the clinical and diagnostic approach of the pathologies (in particular, anamnesis, the physical examination and interpretation of the main diagnostic tests) and the typical clinical pictures of the pathologies analyzed during the Course.

Teaching methods and applied knowledge and understanding - (Dublin 2): Through formal lectures, including applied examples of pathological processes, diseases and clinical pictures, the

student will be allowed to understand how basic pathological processes can alter organ functions and systems as well as mediating the transition from cellular and tissue damage to disease of the organism and specific clinical cases.

Didactic methods used and independent judgment - (Dublin 3): The methods used by teachers will allow the student to be able to independently identify the signs of pathological events, diseases, and clinical cases, as well as to identify the possibility of pharmacologically intervening on some of them and on some mechanisms underlying them (this latter aspect will also be the topic of specific and in-depth studies in courses delivered after this one).

Didactic methods and communication skills - (Dublin 4) Teaching methods used (formal lessons with constant active involvement of students through questions on the topics covered, teacher-student dialogue and in-depth study of the texts indicated) will enable the student to communicate clearly and using appropriate terminology the knowledge acquired about the causes and mechanisms involved in the development of the pathological processes and diseases studied. This prepares him to be able to express concepts clearly and unambiguously to both experts and non-experts on the subject.

Didactic methods used and ability to learn - (Dublin 5): The indications given by the Teachers, with the formal lessons and the proposed insights, will make the student able to study and update himself in a more autonomous way, using more texts and / or bibliography obtained from web platforms for accessing medical-scientific literature.

7. other informations

Teachers are available for information on the Course and clarifications on lessons with an appointment made by e-mail or, for a quick request, at the end of the lessons.

8. methods for verifying learning and for evaluation

Students will be assessed by an exam which consists of:

a) at first, a written exam relating to the module of *Patologia generale* with 60 multiple choice questions that require only one correct answer out of the five provided. The modulation of the questions is done in such a way as to allow to evaluate how much the student has been able to understand (Understanding skills - Dublin 1), apply the knowledge and skills provided by the Course (Applied understanding skills - Dublin 2). The total percentage of questions answered is then calculated, and a formula for calculating the mark out of thirty is applied to it (Linear scale formula). The formula itself determines the attribution of the maximum mark (30/30) with honors if a percentage of 95% of correct answers is reached. In any case honors must be confirmed after the subsequent oral exam. Only if sufficient (18/30) is achieved in the written test will the student be admitted to the second oral test relating to the module of *Metodologia clinico-diagnostica*. The written test will be always delivered using the Blackboard platform with the use of the Respondus Lockdown browser.

b) The second part of the assessment consists in an oral exam relating to the module of *Metodologia clinico-diagnostica*. with at least two questions. In this part of the exam, the judgment will be defined based on how the student, by answering the questions, demonstrates that:

- have clearly acquired the knowledge and skills provided by the Course according to the objectives specified above (**comprehension skills - Dublin 1** and **applied understanding skills - Dublin 2**)
- be able to organize in a transversal way the knowledge acquired by topics during the course (**Autonomy of judgment - Dublin 3**):
- know how to express oneself clearly and using the correct terminology (**Communication skills - Dublin 4**)
- have acquired the knowledge not only by referring to the material taken from the lessons or

provided by the teacher in class (lecture notes, slides, or handouts) (**Ability to learn - Dublin 5**)

In this oral exam the student will be able to aspire to the highest grade (30/30) if they demonstrate to possess all the above requirements in an optimal manner (**Dublin Descriptors 1-5**).

To define the overall mark, reference will be made to both the results of the written and oral tests. Overall, for the attribution of honors it is required that the student has obtained a grade of at least 30/30 in the written test, that he sets out the arguments required in the oral exam with absolute precision and particular certainty and brilliance and that there is the consent of the whole examination board.

Methods for verify learning could be adapted to the occurrence of a Covid-19 emergency and the indications provided by the central Government and the Academic Authorities.

9. program

Metodologia clinico-diagnostica

- Introduction: the basics of the clinical-diagnostic approach to diseases.
- The basics of the medical history and physical examination.
- The interpretation of the main diagnostic tests.
- Clinical manifestations of inflammatory diseases. Clinical picture of local and systemic inflammation.
- Clinical pictures in the neoplastic patient.
- Anemia: signs, symptoms, and diagnostic framework.
- Heart failure: causes, clinical manifestations, and fundamentals of therapy.
- Deep vein thrombosis and pulmonary embolism as a clinical example of alteration of hemostasis.
- Ischemic cardiovascular pathologies as an example of clinical manifestation of atherosclerotic pathology.
- The basics of clinical reasoning.

Patologia generale

- Introduction: Concepts of health and disease.
- Etiology: classification and general features of the main chemical, physical and biological agents. Molecular basis of genetic diseases.
- Cellular pathology: Mechanisms of cellular damage and cellular responses to damage. Cellular adaptations. Degenerative processes. Cell aging. Cell death. Cell and tissue accumulations: steatosis and amyloidosis.
- Flogosis: etiology and classification. Characteristic signs of acute inflammation: cellular and vascular reaction. Chemical mediators of acute inflammation. Cell migration and phagocytosis. Inflammatory exudate: composition, functions, and evolution. Tissue repair and wound healing. Chronic inflammation. Systemic response in inflammation, fever.
- Immunity: Basic concepts of innate and adaptive immunity: cells and tissues of the immune system; receptors and effector mechanisms of innate immunity (complement); major histocompatibility system (MHC); antigens and antigen receptors; maturation, activation, and regulation of lymphocytes; production of antibodies; co-stimulation mechanisms; effector mechanisms of the immune response; cytokines; central and peripheral tolerance, hypersensitivity reactions. Allergies. Notes on autoimmunity and autoimmune diseases.
- Oncology: The neoplastic transformation. Molecular alterations of cancer: oncogenes and tumor suppressors. The biological characteristics of cancer cells. The microenvironment, tumor progression and the formation of metastases. The molecular basis of oncological therapies. The immunological response to tumors and immunotherapy.
- Blood: principles of hematopoiesis; pathophysiology of red blood cells and anemia.
- Coagulation and pathophysiology of hemostasis.
- Physiopathology of the cardio-circulatory system: ischemia, thrombosis, embolism, heart attack, arterial - atherosclerosis, hypertension, and shock.
- Physiopathology of the liver: jaundice, hepatitis, portal hypertension, liver failure and cirrhosis
- Physiopathology of the kidney: mechanisms of glomerular and tubular damage, renal insufficiency.

-Respiratory physiopathology: obstructive syndrome, restrictive syndrome; acid-base balance control mechanisms.