Biopathology and introduction to medical therapy

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Aim

The course of Biopathology and introduction to medical therapy is divided in 10 different modules that are strongly integrated. Students are expected to work towards meeting the following objectives:
To become familiar with essential terminology related to human diseases and to the concepts of disease etiology and pathogenesis. By the end of the course, students will learn the morphological and functional alterations that pathogens and aberrant stimuli can induce in molecules, cells and tissues and their consequences for the entire organism as well as the basic defense mechanisms in response to them. To recognize morphological and functional differences between normal and diseased tissues and to understand, from a structural, functional and biochemical perspective, the different types of pathological lesions. At the end of the course students will be able to integrate pathological findings with clinical manifestations of diseases and to understand the mechanisms underlying signs and symptoms of diseases. To understand the mechanisms of host/microbes interaction in health and disease, the main features of the most important microbes (bacteria, virus, fungi and parasites) of medical relevance, with a focus on the molecular determinants of pathogenesis and resistance to host defenses. At the end of the course students will be able to understand the principles of diagnostic and clinical microbiology. To recognize the signs and symptoms of infectious diseases and to identify preventive and therapeutic measures. At the end of the course students will be also able to interpret data originating from a clinical microbiology laboratory. To understand the public health aspects of zoonotic diseases addressing, in particular, epidemiology, ecology and approaches to control. At the end of the course students will be able to describe the basic features of the most important zoonoses, to discuss the modes of transmission of zoonotic diseases from animals to humans and how this spread is influenced by characteristics of the hosts, vectors and infectious agents. They will also be able to explain how zoonotic diseases are controlled and to describe the various methods of investigation for these diseases, for both epidemic (outbreaks) and endemic cases. To understand the basic principles of drug action and the various mechanisms by which drugs can achieve their pharmacological effects. To understand the fundamental principles of pharmacokinetics and how specific patient characteristics and genetics can affect the response to a particular class of drugs. To understand the scientific basis underlying how different drugs can interact within the body and can have undesirable effects. Moreover, students will be introduced to the principles of clinical drug development and to the methodology of clinical trials. To understand the pharmacology and clinical use of the major class of drugs including drugs affecting the autonomic and central nervous system, antimicrobial and chemotherapeutic drugs used in the treatment of cancer. To understand the patterns of inheritance and mechanisms responsible for several mendelian and chromosomal conditions. At the end of the course students will be able to recognize the genetic and environmental contributions to human diseases and to identify the different approaches available for the diagnosis of genetic disease including the practice of genetic counselling.

**Program**

**Molecular pathology, immunology and pathophysiology**


**Medical Microbiology.** Microbes and humans (commensalism, colonization, infection and disease); microbial biodiversity, host-pathogen interactions in health and disease.

Bacteriology: bacterial pathogenesis: adhesion, toxins, secretion systems, intracellular bacteria; antibacterial agents and mechanisms of drug resistance in bacteria; Staphylococcus spp, Streptococcus spp, Clostridium spp., Bacillus anthracis, Vibrio spp, Helicobacter and Campylobacter spp., Salmonella
Committee.
The only exception to this rule is if the Course Coordinator gives specific permission to use any device. Violations will be referred to the Disciplinary
Course Coordinator.

During exams, any portable electronic devices including mobile phones, must be switched off and put over the desk inside an envelope given by the
Notes

Harrison - Jameson - Loscalzo - Fauci - Kasper - Hauser - Longo , Harrison' s principles of internal medicine -

Evaluation method
The exam is composed of multiple-choice questions (test items) regarding all modules. Student’s evaluation will be assessed with three Intermediate
Tests. Items to be administered during the Intermediate Tests will address issues related to the content of each disciplines (modules) and the number of
items for each discipline will be proportional with the number of CFU/hours administered during the course. In order to pass the exam, students must pass
all three Intermediate Tests. To pass each Intermediate Test, students must respond correctly to at least half of the test items of each discipline.

Bibliography
Harrison - Jameson - Loscalzo - Fauci - Kasper - Hauser - Longo , Harrison’ s principles of internal medicine -

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