FARM1201 Human physiology and basics of physiopathology

[75h+7.5h exercises] 8 credits

Teacher(s): Emmanuel Hermans, Jean-Christophe Jonas, Nicole Morel, Maurice Wibo
Language: French
Level: First cycle

Aims

By the end of this course, the students will possess a general knowledge of fundamental concepts in cellular physiology, and in particular the principles of cell homeostasis and the interaction of the cell with its environment. In this perspective, the animal cell is considered as a single biological unit participating in the formation of a integrated organism (this first part of the course accounts for 2 ECTS).
The student will also have a comprehensive knowledge of the principal systems, their functions, the regulation of their activities and their integration in the organism homoeostasis. Finally, the students will have an overview of the principal dysfunctions of these systems that lead to diverse pathological states. This second part of the course (6 ECTS) should provide sufficient background to follow further specialised courses of pathology and pharmacology.

Main themes

First part : (15 h lectures, 7.5 h practical) : Comprehensive outline of the mechanisms regulating cell homeostasis (intra and extracellular buffers, mechanisms of exchanges of materials and information between intracellular and intracellular compartments, intercellular communication).
Second part : (60 h lectures) : Explanation of the activity, the regulation and the dysfunction of the principal systems : heart and circulation system, respiratory system, body fluids and renal function, central, peripheral and autonomous nervous systems, sense organs, gastrointestinal system, reproduction and endocrine systems.

Content and teaching methods

In a first step, the course is focused on concepts of general physiology of the eukaryotic cell. The course is intended to cover all exchanges that eukaryotic cells develop with its environment and the way the cell responds to alterations of this environment or diverse stimuli. Thereafter, the functional physiology and basics concepts of physiopathology are examined systematically. Each system is considered separately by describing the constitutive cells and tissular types, its physiological activity and the mechanisms participating in its regulation. A particular attention is also given to the study of alterations of each system, leading to an introduction of possible therapeutical approaches.

Other information (prerequisite, evaluation (assessment methods), course materials recommended readings, ...)

Requirements :
For the first part :
MD1005 Biologie générale (9 credits) or equivalent
MD1006 Cytologie et histologie générales (5 credits) or equivalent
For the second part :
FARM1007 Eléments d'anatomie fonctionnelle (2 credits) or equivalent
The course includes lectures (total of 75 h) and practical activities (7,5h)
Support : All documents related to the lectures are available for students as paper copies (these documents are also accessible on Internet via the website of the university - iCampus). A book of reference is also proposed
Examination : Written exam with open questions (questions requiring extended explanation)

Other credits in programs

ESP1PM	Année d'études préparatoires au master en sciences de la santé publique	(8 credits)	
NUT21	Première licence en sciences biomédicales (nutrition humaine)	(8 credits)	Mandatory
SBEX21	Première licence en sciences biomédicales (sciences biomédicales expérimentales)	(8 credits)	Mandatory
TOX21	Première licence en sciences biomédicales (toxicologie)	(8 credits)	Mandatory