UCL Université catholique de Louvain

WFARM1282

2012-2013

General microbiology

3.0 credits	18.0 h + 15.0 h	1+2q

Teacher(s) :	Michiels Thomas ;
Language :	Français
Place of the course	Bruxelles Woluwe
Main themes :	Description and classification of bacteria and animal viruses; Molecular mechanisms of bacterial and viral life cycles. Gene regulation and use of microbial genomes as tools for research and development in the field of pharmaceutical and medical sciences.
Aims :	The lecture presents basic knowledge about structure and function of the bacterial cell and of animal viruses: from the genome to the principles of antimicrobial chemotherapy and resistance. It aims at giving the student the ability to use basic knowledge of bacterial functions and viral life cycles as a tool for further understanding of host-microbes interactions, antimicrobial chemotherapy and resistance, as well as technologies based on the use of bacterial and viral functions. *The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".*
Content :	Introduction to the microbial world (chronological account of microbes characterization, eucaryotes & procaryotes, viruses, bacteria...) Bacteriology: (i) growth of bacteria, (ii) Structure of the bacterial cell and transport of molecules (Gram+ versus Gram-, cytoplasm, peptidoglycan, membranes, appendices, transport accross membranes). (iii) the bacterial genome (genome structure, replication, gene expression and regulation) and genome plasticity (mutations and their impact, plasmids, bacteriophages, gene transfer by transformation, conjugation, transduction or transposition) (iv) antibacterial chemotherapy and resistance mechanisms. Virology: Nature and structure of animal viruses: Replication cycle of viruses chosen to illustrate the link between the nature of the genome, replication strategies, evolution and virus-host interactions (SV40, Herpes, polio, influenza, aids)
Other infos :	Prerequisite: - basic elements of cell biology: cell, cytoplasm, nucleus, organelles, membranes, subcellular trafficking - basic elements in biochemistry and molecular biology: protein, lipid, sugars, nucleic acids, transcription, translation Evaluation: - Classical exam. Most questions (exercices) are devoted to test the understanding of the concepts rather than to test memory capacity. Lab course performances are taken into account. Support: - text (syllabus) and illustrations - reference to textbooks that are available at the library in english and/or in french.
Cycle and year of study :	> Preparatory year for Master in Biomedicine > Bachelor in Biomedicine > Bachelor in Pharmacy
Faculty or entity in charge:	FARM