


	<p>f. Bacteriophages - , lytic cycle and lysogeny</p> <p>g. Transfer of genetic information - transformation, transduction, conjugation, transposition - limitation of genetic transfer (restriction-modification, the CRISPR-Cas system)</p> <p>5. Anti-bacterial agents and antibiotics</p> <p>a. Disinfectants and antiseptics (chemicals, heat, filtration, UV and gamma radiations)</p> <p>b. Antibiotics: antibiotic examples, targets and mode of action - metabolism - replication and transcription - Ribosomes - cell wall synthesis - membranes</p> <p>c. Antibiotic resistance - antibiotic inactivation - target modification or overproduction - target replacement - efflux pumps</p> <p>d. Abuse and misuse of antibiotics, and origin of resistances</p> <p>C. Virology</p> <p>1. General introduction</p> <p>a. Historical discoveries in Virology</p> <p>b. Virion morphology and structure (components : nucleic acids, capsid, envelope...)</p> <p>c. The viral cycle : Attachment, uncoating and entry, gene expression, réplication, assembly, egress (according to the nature of the virus)</p> <p>d. Transmission and propagation</p> <p>e. Classification</p> <p>2. Selected examples illustrating the diversity of replication cycles according to the genome and virion properties.</p> <p>a. SV40, a small non-enveloped DNA virus</p> <p>b. poliovirus, a positive-stranded non-enveloped RNA virus</p> <p>c. influenza, a segmented, negative-straded RNA virus</p> <p>d. HIV, a lentivirus (example of retrovirus)</p> <p>Practicals on bacteriology, gene transfer and antibiotic resistance are organized as part of this course</p>
Learning outcomes	
Evaluation methods	The exam is organized as a written exam. The exam includes a section with multiple choice questions (8 to 10 points/20), and a section with short open-ended questions and/or exercices in which students will be evaluated on their capacity to implement their knowledge.
Teaching methods	Lectures and tutorial classes (possibly by Teams or life+streaming according to the COVID evolution)
Content	Introduction to the world of viruses and bacteria. Topics include : - structure and organization of typical bacteria (Gram+ or Gram-) - bases of bacterial functioning (compartmentalization, transport, energy) - nature, functioning, and evolution of bacterial (and bacteriophage) genomes - DNA transfer within the bacterial cell and between bacteria - principles of antibiotics activity, and development of antibiotic resistance - structure, organization and mode of replication of viruses that infect eucaryotic cells - functioning of viruses and consequences of the infection, based on selected examples
Inline resources	Files with informations, exercices and with slides presented in the course are available on MoodleUCL (https://moodleucl.uclouvain.be/).
Bibliography	Syllabus (texte + illustrations présentées au cours), disponible sur Moodle Site Web d'initiation à la virologie (+ tests et quiz) http://www.virologie-UCLouvain.be Prescott, L. M., Harley, J. P. & D. A. Klein (2003). Microbiologie. Bruxelles : De Boeck
Other infos	For students who can not document a previous attendance to equivalent practicals in Microbiology, attendance is mandatory. In cas of absence to the practicals, the global mark for the course (including the theoretical part) will be set to 0/20 for the entire academic year.

Faculty or entity in charge	FARM
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Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Bachelor in Medecine	MD1BA	2	WMEDE1112 AND WMDS1109	
Bachelor in Dentistry	DENT1BA	2	WMEDE1112 AND WMDS1109 AND WMDS1105	