	f. Bacteriophages - ', lytic cycle and lysogeny g. Transfer of genetic information - transformation, transduction, conjugation, transposition - limitation of genetic transfer (restriction-modification, the CRISPR-Cas system) **5. Anti-bacterial agents and antibiotics** a. Disinfectants and antiseptics (chemicals, heat, filtration, UV and gamma radiations) b. Antibiotics: antibiotic examples, targets and mode of action - metabolism - replication and transcription - Ribosomes - cell wall synthesis - membranes c. Antibiotic resistance - antibiotic inactivation - target modification or overproduction - target replacement - efflux pumps d. Abuse and misuse of antibiotics, and origin of resistances **C. Virology** **1. General introduction** a. Historical discoveries in Virology b. Virion morphology and structure (components : nucleic acids, capsid, envelope...) c. The viral cycle : Attachment, uncoating and entry, gene expression, réplication, assembly, egress (according to the nature of the virus) d.Transmission and propagation e. Classification **2. Selected examples illustrating the diversity of replication cycles according to the genome and virion properties.** a. SV40, a small non-enveloped DNA virus b. poliovirus, a positive-stranded non-enveloped RNA virus c. influenza, a segmented, negative-straded RNA virus d. HIV, a lentivirus (example of retrovirus) Practicals on bacteriology, gene transfer and antibiotic resistance are organized as part of this course
Learning outcomes	
Evaluation methods	The exam is organized as a written exam. The exam includes a section with multiple choice questions (10 to 12 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 - priniciples 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)

Faculty or entity in charge	FARM

Programmes containing this learning unit (UE)

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