

Language :	French
Place of the course	Louvain-la-Neuve
Prerequisites	<i>The prerequisite(s) for this Teaching Unit (Unité d'enseignement – UE) for the programmes/courses that offer this Teaching Unit are specified at the end of this sheet.</i>
Learning outcomes	
Evaluation methods	- The evaluation consists of a final written exam in the form of Multiple Choice Questions (MCQ) with Multiple Responses and including: - the theoretical course, including the content of the <i>Microstories</i> (see below) (18/20) - the practical work (2/20) The evaluation results in a single score. In case of failure, the entire exam must be retaken. - Evaluation of the presentation made by certain students (on a voluntary basis) that have presented a <i>Microstory</i> , on a subject related to the course and chosen in interaction with the teacher. The evaluation of this presentation represents a bonus of maximum 2 points on the final exam mark. - Practical work (laboratory session): > By group of 2. Compulsory participation . A penalty of -1 point /20 on the final exam mark per practical session missed in the event of an unjustified absence. If the student has not participated in any practical work without valid justification, the course teacher reserves the right to propose to the jury to object the student's registration to the written exam. Students that repeat the course can request to be exempted from attending the practical work.
Teaching methods	- The main activity is given as <i>ex cathedra</i> courses, which include many practical examples and case studies, taken from human and animal health, the environment or biotechnological applications. - At the beginning of each lecture, a recapitulation (<i>ca</i> . 15 min) of the main messages from the previous course is given in English. - On a voluntary basis, a dozen students have the possibility to present a « <i>Microstory</i> » (<i>ca</i> . 15 min), dealing with aspects related to the course. - Practical work (mandatory activity): - Groups of 2 students - Case study under the supervision of an assistant/technician team - Each student has the opportunity to perform the main basic operations related to the observation and control of the micro-organisms - Writing of an individual report, in the laboratory notebook.
Content	In order to achieve the objectives of this course, the following themes will be developed, in an integrated manner: - The microbial world in the reality of its size and diversity, the multiplicity of its habitats and relationships with the environment, including the other organisms. - The world of viruses and bacteriophages and the methods developed for their use or control. - The potential of genetic adaptation of microbes and, in particular, the specificity of their sexuality. - The strategies allowing the most efficient control of micro-organisms, using either prophylactic or curative methods. - The industrial use of microbes in the fields of agro-food industry, environment or medicine. - The past, present and future use of micro-organisms in biological engineering. The main objectives of the practical work, mostly performed by the students themselves, are: i) macroscopic and microscopic observations of bacteria, fungi and/or bacteriophages, and ii) the use of the basic techniques of descriptive microbiology.
Bibliography	- Dias du cours sur MOODLE - Wiley J., Sherwood L., Woolverton C., Coyette J., Joseleau J.-P. & Perraud, R. (2018) <i>Microbiologie de Prescott</i> (5e édition). De Boeck supérieur. 980 pp - ISBN- 9782807308022. - Madigan M., Bender K., Buckley D., Sattley M., Stahl DA. & Brock T. (2022) <i>Brock Biology of Microorganisms</i> (16th Edition). Pearson Education. 1124 pp - ISBN 9781292404790.
Faculty or entity in charge	AGRO

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Minor in Scientific Culture	MINCULTS	4		
Bachelor in Bioengineering	BIR1BA	4	LBIR1250	