




3.00 credits

30.0 h

Q1

Teacher(s)	Alsteens David ;Hachez Charles (coordinator) ;Hols Pascal ;
Language :	English > French-friendly
Place of the course	Louvain-la-Neuve
Prerequisites	General microbiology and general biochemistry Biological and microbial engineering
Main themes	The different types of microbial, animal and plant cell cultures will be presented. The importance of the culture medium composition and of the culture parameters will be described. Problems related to scaling-up will be highlighted. Several examples of biomedical and industrial applications will be illustrated.
Learning outcomes	<p><b>At the end of this learning unit, the student is able to :</b></p> <p>a. Contribution de l'activité au référentiel AA (AA du programme) Cohérence des AA cours en regard de ceux du programme</p> <p>1.2 2.2 3.1 6.1, 6.2, 6.4</p> <p>b. Formulation spécifique pour cette activité des AA du programme By the end of this course, the student should be able:</p> <ul style="list-style-type: none"> <li>- To explain the methods used for growing microbial, animal and plant cells</li> <li>- To explain the major applications of cell cultures</li> <li>- To understand and set out examples of cell cultures in the microbial, animal and plant fields as described in English scientific journals</li> </ul>
Evaluation methods	The evaluation is done in the form of a written exam whose questions may cover the different parts of the course (plant, animal or bacterial cells) as well as articles from the scientific literature related to the course. On this occasion, students may be confronted with articles from the scientific literature related to the subjects that were presented.
Teaching methods	The theoretical part will be presented by the teachers using the blackboard and PowerPoint files. Powerpoint files including audio comments are posted on Moodle.
Content	<p>Microbial cells: culture methods, influence of the medium composition and physico-chemical parameters, combining of metabolic engineering and culture parameters, examples of production of metabolites</p> <p>Animal cells (mammals and insects): general properties, adhesive and non-adhesive cells, culture medium composition, serum-free medium, physical parameters, examples of protein production, hybridoma and monoclonal antibody production</p> <p>Plant cells: cell, tissue and organ culture, culture medium composition, bioreactor design, example of production of pharmacological metabolites and proteins.</p>
Inline resources	Moodle
Bibliography	ouvrages de référence mentionnés au premier cours (achat non-obligatoire)
Other infos	This course can be given in English.
Faculty or entity in charge	AGRO

<b>Programmes containing this learning unit (UE)</b>				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Master [120] in Biochemistry and Molecular and Cell Biology	BBMC2M	3		
Master [120] in Biomedical Engineering	GBIO2M	3		
Master [60] in Biology	BIOL2M1	3		
Master [120] in Chemistry and Bioindustries	BIRC2M	3		