

5.0 credits	37.5 h + 18.0 h	1q
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Teacher(s) :	Lejeune André ;
Language :	Français
Place of the course	Louvain-la-Neuve
Prerequisites :	Good knowledge and precise use of mother language, ability to analyse and synthesise, regularity in the study, scientific curiosity, motivation. Prior general knowledge in biology is an advantage, although not decisive.
Main themes :	Introductory course in biology focusing on the structure and function of cells, mainly eukaryotic, preceded by the study of the required notions in biochemistry. Other parts of the course deal with the general principles of classification of living beings and the general characteristics (biology, classification, ecology, etc.) of prokaryotes, protists and fungi.
Aims :	<ul style="list-style-type: none"> - To know and understand the structure, working and structure-function relations in cells calling on, among others, notions in chemistry. - To know and understand the general notions of classification of living beings and of biology of prokaryotes, protists and fungi. - To critically read a statement or terms of a problem and write with rigor and synthetically a well structured text or a table. - Following instructions, to carefully use a light microscope and observe and understand microscopic preparations, realize cell metabolism experiments, write a report. - Aiming at mobilizing knowledge to solve a simple problem in the way of doing of a scientist or a veterinarian, to use the notions seen during the classes to address questions related to new situations. <p><i>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".</i></p>
Evaluation methods :	<ul style="list-style-type: none"> - Early in the semester written examination - Reports of the laboratory work <p>The two above-mentioned evaluations are not repeated and the marks obtained are definitive.</p> <ul style="list-style-type: none"> - Written final examination on the topics taught during the theoretical classes and the teaching laboratories.
Teaching methods :	<p>The course aims at presenting the general notions of biology of the cell and of prokaryotes, protists and fungi. It is illustrated by examples of applications or by indicating the importance of -certain processes relevant to relevant to the fields of interest to scientists and veterinarians. The course gives a general overview of the themes of which certain will be further detailed if life science courses of the study programme of the students.</p> <ul style="list-style-type: none"> - Classroom teaching for the theory - Laboratory teaching illustrating certain parts of theory : preparation of microscopic slides and observation, observation if iconographic documents obtained by electron microscopy, realization of simple experiments on cell metabolism. - Weekly sessions of tutorship (questions put individually by students) - Early in the semester examination for inciting to early study and as an informative tool for students to assess the quality of their study, followed by a correction of this examination. - If possible, setting up at the beginning of the semester of <ul style="list-style-type: none"> -a formative test to make students aware of their strong or weak points -a workshop on study methodology to help students better apprehend the objectives and the level of requirement of the course.
Content :	<p>1) Theoretical classes Introduction to living beings Cell biology</p> <ul style="list-style-type: none"> -The main chemical components of cells (chemical bonds, water, proteins, carbohydrates, nucleic acids, lipids) and an overview of the main characteristics of some cell types. -Integrated study of cell structures and functions : extracellular structure, membranes, transmembrane transports, lysosomes and digestion in animal cells, endoplasmic reticulum, Golgi apparatus and secretion, cytosol and fermentation, mitochondria and respiration, plastids and photosynthesis, peroxisomes, cytoskeleton, ribosomes and protein synthesis, interphase nucleus and transcription, cell cycle (cycle, DNA replication, mitosis and cell division), reproduction (meiosis, life cycles). <p>Introduction to prokaryotes, protists and fungi</p> <ul style="list-style-type: none"> -General classification systems of living beings -Biological characteristics and diversity of living beings classified as prokaryotes, protists and fungi. <p>2) Laboratory teaching</p> <p>Nine sessions of two hours each : initiation to light microscopy, cell diversity and main constituents of cells, enzymology, transmembrane transports, plastids and starch granules, cell ultrastructure (electronic microscope documents), mitosis and cell division, meiosis.</p>

Bibliography :	Notes for the theoretical classes and the laboratory teaching written by the teaching team, their use is deemed compulsory. Various books are mentioned and available at the Library of Sciences and Technology of the university.
Other infos :	Participation to all the laboratory sessions is compulsory. In case of unjustified absence, a penalty is incurred on the final note of the course. The same applies to the repeated misuse of the equipment of the laboratories. Regularity in the study and a questioning approach on the topics of the course are strongly recommended.
Cycle and year of study :	<ul style="list-style-type: none"> > Master [120] in Statistics: Biostatistics > Bachelor in Bioengineering > Bachelor in Chemistry > Bachelor in Information and Communication > Bachelor in Philosophy > Bachelor in Pharmacy > Bachelor in Computer Science > Bachelor in Economics and Management > Bachelor in Motor skills : General > Bachelor in Human and Social Sciences > Bachelor in Sociology and Anthropology > Bachelor in Political Sciences: General > Bachelor in History of Art and Archaeology : General > Bachelor in Mathematics > Bachelor in History > Bachelor in Biomedicine > Bachelor in religious studies > Bachelor in Biology > Bachelor in Geography : General > Bachelor in Veterinary Medicine
Faculty or entity in charge:	BIOL