UCL Université catholique de Louvain

WMDS1102

2014-2015

Biologie et embryologie générale

6.0 credits	50.0 h + 20.0 h	1q

Teacher(s) :	Many Marie-Christine (coordinator) ; De Smet Charles ;
Language :	Français
Place of the course	Bruxelles Woluwe
Prerequisites :	Prerequisite : the student should be able to understand, reason, and express himself clearly and correctly in French. No specific knowledge in biology is expected.
Main themes :	1) Characteristics of living things, and molecules of life ; 2) Structure of the cell, structure of biological membranes, cellular interactions, energy and cellular metabolism, enzymes and cellular division ; 3) Genes and chromosomes, the genetic code, gene expression, structure of the genome, sexual reproduction and meiosis, heredity (laws of Mendelian inheritance) biotechnologies ; 4) Concepts and theories of evolution, evolution of populations, speciation and macroevolution, global vue of life diversity, the emergence of man ; 5) embryology
Aims :	A the end of the course, the student should : - know the basic concepts of biochemistry, cytology, embryology, and human genetics ; - understand what living things are, what they share, and how they diversified during evolution, starting from the first life forms up until modern humans ; - be able to explain the links between structures and physiological functions within living beings, especially at the cellular level ; - have good knowledge of the molecular bases of genetics, and be able to apply principles of Medelian inheritance laws. The student will also learn how to use a microscope. Activities are also intended to develop skills in observation, reasoning, synthesis, and scientific rigour. *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".*
Evaluation methods :	Assessment : Writtent exam.
Content :	1) Molecules of life, properties of water and carbon, macromolecules. 2) Cellular organization (procaryotes vs eucaryotes), organelles and membrane network ; structure and function of biological membranes (transports, endocytosis and exocytosis) ; cell communications, signal reception and transduction, cellular junctions ; energy and work, metabolism (role of ATP, cell respiration, photosynthesis), enzymes and ribozymes ; cell cycle and mitosis. 3) DNA and genes, transcription and translation, genetics of procaryotes and viruses ; genome composition ; sexual reproduction and meiosis ; Mendelian inheritance, recessive and dominant alleles, linked and independant genes, sexe-linked genes, crossing-over, chromosome anomalies, population genetics ; introduction to genetic engineering. 4) and 5) Cfr Marie-Christine
Other infos :	Materials : Slideshows will be availble online. Different references are recommended to the students for further information. Supervision : The supervision of practical courses is organized by work managers and assistants. Tests are carried out and corrected each week.
Cycle and year of study :	> Bachelor in Medecine
Faculty or entity in charge:	MED