



The version you're consulting is not final. This course description may change. The final version will be published on 1st June.

3.00 credits	35.0 h + 30.0 h	Q1
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Language :	English
Place of the course	Louvain-la-Neuve
Main themes	<p>The course consists of two major parts, dealing with macroevolution and microevolution, respectively.</p> <p>The first part will deal with the appearance of life, the evolution of reproductive systems, autotrophy/heterotrophy, organel formation, endosymbiosis, the main innovations in plant and animal evolution and the origin of man and cultural evolution. The major scientific theories (catastrophism, Darwinism, Neodarwinism, synthetic theory, neutralism, selfish gene, punctuated equilibrium, complexity and chaos) will be explained and discussed.</p> <p>The second part deals with selection, adaptation and evolution on shorter time scales, and will discuss various subjects, such as genetic variation, heritability, natural and sexual selection, kin selection, evolution of sociality, game theory, life history theory, mating systems, aging and senescence.</p>
Learning outcomes	<p>At the end of this learning unit, the student is able to :</p> <p>1 Evolution is a constantly changing field due to the variety of sometimes contradictory theories. Students will acquire the basic knowledge needed to understand the main theories. They should be able to discuss these theories, to formulate hypotheses, discuss them and to make a synthesis. During a public seminar they will present and discuss an aspect of evolution from different points of view. Articles on microevolution will be discussed in class, and students will learn how to critically read an article.</p>
Evaluation methods	The evaluation will be based on both in-class activities (Dennis) and a written exam (both parts)
Teaching methods	Classroom lectures, with bioinformatic exercises
Content	<p>The course consists of two parts:</p> <p>The first part, at UNamur, given by A. Dennis will use a combination of lectures, activities, and paper discussions to deepen your understanding of evolutionary processes. We will build on this by learning how to build hypotheses for the relationships among individuals. Examples will be discussed with both limitations and applications in mind.</p> <p><u>Main lecture topics:</u></p> <ul style="list-style-type: none"> - A deeper view of evolutionary theories and their application - Building and interpreting phylogenies - The genomic basis of adaptation, detection and interpretation <p>The second part, given by L. Duchatelet at UCLouvain, will apprehend the natural, sexual, and behavioral selection principles, the evolutionary convergence, the adaptation and evolution at different scale times. Across diverse case studies, students navigate between the concepts of evolutive biology, from methodological approaches to the integration of the different concepts and theories covered.</p> <p><u>Main lecture topics:</u></p> <ul style="list-style-type: none"> - population genetic and evolutive forces - Natural selection versus sexual selection - Behavioural selection - convergence evolution
Faculty or entity in charge	BIOL

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Master [120] in Biology of Organisms and Ecology	BOE2M	3		
Master [60] in Biology	BIOL2M1	5		
Master [120] of Education, Section 4 : Biology	BIOL2M4	3		