

3.00 credits

30.0 h + 10.0 h

Q2

Teacher(s)	Baguette Michel (compensates Nieberding Caroline) ;Nieberding Caroline ;Rezsohazy René ;
Language :	French
Place of the course	Louvain-la-Neuve
Prerequisites	General training in biochemistry, molecular biology, biology of organisms, ecology, documentary research. Skills and knowledge developed in the courses LBIO1110 and LBIO1223
Main themes	<p>This course aims to provide a current overview of evolutionary biology, and to show the diversity of approaches to characterize and understand what underlies biological evolution at its different levels of organization: from molecules to ecosystems. This course will specifically address evolutionary biology themes in complementarity and integration with other related courses:</p> <ul style="list-style-type: none"> <li>- Special Evolutionary Issues (LBIO1350)</li> <li>- Speciation: origins of biodiversity (LBIO1355)</li> <li>- Biogeography (LGEO1332),</li> <li>- Molecular biology (LBIO1223),</li> <li>- Functional Ecology (LBIO1317),</li> <li>- Animal Behavior (L1254).</li> </ul>
Learning outcomes	<p><b>At the end of this learning unit, the student is able to :</b></p> <ul style="list-style-type: none"> <li>• Master the concepts and vocabulary used in evolutionary biology;</li> <li>• Understand the methods, and their limitations, used in evolutionary biology, both laboratory and field methods;</li> <li>• List and relate experimental and correlative evidence of biological evolution from a range of distinct scientific disciplines;</li> <li>• Formulate testable hypotheses on the adaptive value and evolutionary dimension of the phenotypic (morphology, physiology, behaviour) and genotypic traits of living organisms in their natural environment.</li> </ul>
Evaluation methods	Written examination and report on the practical part of the course. It is important to note that a serious failure (7/20 or less) in one of the parts of the course (partim Prof. Nieberding, Prof. Rezsohazy, partim "practical work") is rated overall with a 7/20 for the entire course. A partial exemption during the academic year can be obtained for the part(s) passed for the following sessions, upon written request by email to the teacher at the exemption office is possible.
Teaching methods	Lectures, with support of a reference textbook available online and the ppt files from the professors, available on moodle. The practical work consists in a report to write on a publication chosen from a list linked to the course, and prepared by groups of 2 to 4 students.
Content	This course deals with the main themes of evolutionary biology: molecular evolution, evolution of constraints, of development, of life history traits, of behaviour, including the ways in which individuals are paired and the interactions between species, will be documented. The role of sexual selection and natural selection in the evolution of organisms will be particularly discussed. We will also learn about the methods available to quantify evolution (experimental evolution, artificial selection), as well as natural selection (selective value or "fitness"). The evolution of man as well as the evolution of organisms in the Anthropocene, an environment profoundly modified by human activities, will be quantified.
Inline resources	Course content and practical information is available and provided via the Moodle platform for the course. It is important to register as soon as possible to receive this information. The reference book "Evolutionary analysis" by Herron and Freeman (2014), is made available free of charge in an annotated electronic version for students with a UCLouvain matricule (and therefore registered at UCLouvain). See practical information on the Moodle platform.
Bibliography	Livre de référence : Evolutionary Analysis, book by Freeman and Herron (2014)
Other infos	Course given in French, with English written support
Faculty or entity in charge	BIOL

**Programmes containing this learning unit (UE)**

Program title	Acronym	Credits	Prerequisite	Learning outcomes
Bachelor in Biology	BIOL1BA	3		