


3.00 credits

30.0 h + 10.0 h

Q2

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|-----------------------------|--|
| Teacher(s)                  | Nieberding Caroline ;Rezsohazy René ;  |
| Language :                  | French   |
| Place of the course         | Louvain-la-Neuve   |
| Prerequisites               | Have acquired the main concepts covered, for example, in the course LBIO1110 "Le vivant : diversité et évolution ".<br><i>The prerequisite(s) for this Teaching Unit (Unité d'enseignement – UE) for the programmes/courses that offer this Teaching Unit are specified at the end of this sheet.</i>  |
| Main themes                 | 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: <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           | <b>At the end of this learning unit, the student is able to :</b> <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       | LBIO1110     |  |