

## Evolution of Primates and Paleo-anthropology (C004082)

**Course size** (nominal values; actual values may depend on programme)

**Credits 3.0**

**Study time 75 h**

**Course offerings and teaching methods in academic year 2024-2025**

A (semester 2)

English

Gent

excursion

lecture

**Lecturers in academic year 2024-2025**

Adriaens, Dominique

WE11

lecturer-in-charge

**Offered in the following programmes in 2024-2025**

**crdts**

**offering**

Master of Science in Teaching in Science and Technology(main subject Biology)

3

A

Master of Science in Biology

3

A

Master of Science in Geology

3

A

Micro-credential Evolution of Primates and Paleo-anthropology

3

A

Exchange Programme in Biology (master's level)

3

A

Exchange programme in Geology (master's level)

3

A

**Teaching languages**

English

**Keywords**

Evolution of Primates, prosimians, Old World monkeys, New World monkeys, great apes, human evolution, paleo-anthropology, cultural evolution, stone tools, important sites, fossil evidence, phylogeny, brain evolution, locomotion, speciation, ...

**Position of the course**

The goal of this course is to provide an overview of the current knowledge on the origin, biodiversity and anatomy of primates en how man evolved within them. The morphological evolution and biodiversity of both primate ancestors and primate taxa are discussed, based on an extensive overview of data from literature. The currently ruling hypotheses, that try to explain the origin of man and its ancestors are critically compared. The importance of a shift from morphological evolution to cultural evolution during human evolution is discussed, thus allowing students to put the current culture and behaviour of modern humans in perspective.

**Contents**

**Lectures:** In a first introductory part, the origin of mammals is discussed, followed by an overview of the most important primate characteristics, including tooth morphology, cusp terminology and some general adaptations to climbing. A concise but still broad overview is given of the biodiversity of recent Primates (e.g. makis, lorises and bush babies, *Tarsius*, howler monkeys, capucins, baboons, macacs, colobus monkeys, gibbons, orang outans; chimpanzees, gorillas) as well as of some important fossil groups (e.g. Plesiadapiformes, Omomyoidea, Adapoidea, *Sivapithecus*, *Proconsul*, ...). The origin of the primate body plan and the radiations within the group are discussed, where ruling hypotheses are mentioned, to understand the onset of human evolution. An extensive overview is given of the current knowledge of the fossil record of human ancestors and man (starting about 8 million years ago), with attention paid to their typical characteristics and phylogenetic relationships. Genera that are discussed are *Sahelanthropus*, *Orrorin*, *Ardipithecus*, *Australopithecus*, *Kenyanthropus*, *Paranthropus* and *Homo*. Some

theories that provide an explanation for the origin of man are critically dealt with (e.g. savannah theory, aquatic ape theory, theories on the hypertrophy of the brain, ...). An overview is given of the stone tools technology within the genus Homo, as well as the origin of language.

### **Initial competences**

The anatomical basis to understand the evolution in primates and man partially relies on the knowledge on vertebrate morphology, obtained from the course "Vertebrates: histology and comparative anatomy" (Bachelor 2 Biology). Even though the a priori knowledge of morphological aspects is an advantage, it is not required for this course as sufficient time is spent to clarify morphological traits and features of vertebrate morphology. Depending on the student's bachelor education, an introductory class will be given on mammalian morphology.

### **Final competences**

- 1 Students are well familiar with the overall trends that characterize the evolution of primates and man.
- 2 Students can identify anatomical traits that characterise primates and human evolution, and put them within an evolutionary context.
- 3 Students have an overview of the biodiversity and relationships of primate taxa, as well as of the fossil record that reflects human evolution, based on recent literature.
- 4 Students have a good insight in the relation between morphological evolution, biogeography, and cultural evolution that typifies humans and their ancestors, and can interpret and critically evaluate the current hypotheses on human evolutionary relationships.
- 5 Students can communicate the most important aspects of human evolution towards a broader audience, both within a scientific and societal context.

### **Conditions for credit contract**

Access to this course unit via a credit contract is determined after successful competences assessment

### **Conditions for exam contract**

This course unit cannot be taken via an exam contract

### **Teaching methods**

Excursion, Lecture

### **Extra information on the teaching methods**

- **Lectures** Overview of primate biodiversity, morphology, phylogeny, evolutionary transformations in anatomical traits, species-specific traits, evolutionary trends, speciation, migration, etc.

### **Study material**

Type: Slides

Name: Slides lectures

Indicative price: € 25

Optional: yes

Language : English

Number of Slides : 360

Oldest Usable Edition : 2023

Available on Ufora : Yes

Online Available : Yes

Available in the Library : No

Available through Student Association : Yes

### **References**

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### **Course content-related study coaching**

During the course, students can ask questions at the end of each class or after making an appointment. At the end of the course, special sessions for answering questions can be organised.

### **Assessment moments**

end-of-term assessment

### **Examination methods in case of periodic assessment during the first examination period**

(Approved)

Written assessment with open-ended questions

**Examination methods in case of periodic assessment during the second examination period**

Written assessment with open-ended questions

**Examination methods in case of permanent assessment**

**Possibilities of retake in case of permanent assessment**

not applicable

**Extra information on the examination methods**

Evaluation where the students are tested for their insight in the evolutionary trends that characterise the evolution of primates, hominids and modern humans, fossil evidence, etc. The exam comprises several statements, of which the correctness needs to be argued. The duration of the exam is maximally 3 hours.

**Calculation of the examination mark**

Evaluation based on the lectures (100%).