GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2021-2022

Evolution of Primates and Paleo-anthropology (C004082)

Due to Covid 19, the education and evaluation methods may vary from the information displayed in the schedules and course details. Any changes will be communicated on Ufora.

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

Credits 3.0 **Study time** 75 h **Contact hrs** 24.0 h

Course offerings and teaching methods in academic year 2022-2023

A (semester 2)	English	Gent	lecture	15.0 h
			excursion	8.75 h

Lecturers in academic year 2022-2023

Adriaens, Dominique	WE11	lecturer-in-charge

Offered in the following programmes in 2022-2023	**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
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, loris and bush babies, Tarsius, howler monkeys, capucins, baboons, macacs, colobus monkeys, gibbons, ourang 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.
Excursion: During a one-day visit to the Royal Belgian Institute for Natural Sciences (Brussels), the following activities are planned: (1) visit to the exhibition on human evolution, (2) performing focused observations on the material present in the exhibition, in relation to particular assignments, (3) group discussion on the results of the latter assignment, and (4) visit behind the scene to the collections and research groups active in palaeo-anthropological research. Students are expected to arrange and cover for travel towards the Museum.

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.
- **Excursion:** performing observations, framing observations in the broader evolutionary context, identifying of species specific traits on skeletal material, get to know on-going palaeo-anthropological research and collections.

In the case of COVID19, the practical implementation of the didactic methods may change if the necessity is imposed upon.

Learning materials and price

A syllabus (Dutch only) and the PowerPoint slides used are available (published by Academia Press) (cost estimated €15 and €10, resp.).
A train ticket to Brussels has to be purchased for the excursion to the Royal Belgian Institute for Natural Sciences (max. €20).
Access to the museum costs €6.
Total cost: €50.

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.

Evaluation methods

end-of-term evaluation

Examination methods in case of periodic evaluation during the first examination period

Written examination with open questions, oral examination

Examination methods in case of periodic evaluation during the second examination period

Written examination with open questions, oral examination

Examination methods in case of permanent evaluation

Possibilities of retake in case of permanent evaluation

not applicable

Extra information on the examination methods

Periodic evaluations 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.
In the case of COVID19, the practical implementation of the evaluation methods may change if the necessity is imposed upon.

Calculation of the examination mark

Evaluation based on the lectures (100%), but participation to the excursion is obligatory. Students who are legitimately absent on the day of the excursion need to make an alternative assignment at a different time. Unjustified absence gives rise to a total maximum score (theory + practical exercises) of 9/20, irrespective of the score for the theoretical part.