

Study of the Vertebrates and General Anatomy of Domestic Animals (G000718)

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	<i>(nominal values; actual values may depend on programme)</i>		
Credits 13.0	Study time 390 h	Contact hrs	130.0 h

Course offerings and teaching methods in academic year 2020-2021

A (year)	Dutch	Gent		
			online lecture	40.0 h
			lecture	21.25 h
			guided self-study	10.0 h
			practicum	12.5 h
			demonstration	18.75 h
			lecture: plenary exercises	10.0 h
			online demonstration	20.0 h

Lecturers in academic year 2020-2021

Cornillie, Pieter	DIO3	lecturer-in-charge
De Spiegelaere, Ward	DIO3	co-lecturer

Offered in the following programmes in 2020-2021

	crdts	offering
Bachelor of Science in Veterinary Medicine	13	A

Teaching languages

Dutch

Keywords

Descriptive Anatomy, Comparative Anatomy, Evolution, Vertebrates, Diversity

Position of the course

The descriptive and comparative anatomy constitutes the backbone of this course. A systematic overview is given of the anatomical organisation of all systems and body regions of the common domestic animals. The focus not only lies on the meticulous description of all structures relevant to the veterinary profession and application of a correct nomenclature, the approach also involves a certain reflection on evolutionary backgrounds (both anatomical as functional) of a certain structure or specialisation. Basic principles of evolution in general, and the phylogeny of vertebrates specifically are also extensively addressed. Specific adaptations as seen in domestic animals are compared with solutions to a similar problem as observed in other vertebrates. The phylogenetic position of our domestic animals in the tree of life and the diverse clade of the vertebrates is highlighted as well.

This approach surpasses the pure descriptive, factual knowledge gathering. The general aim is to develop a critical and analytical, scientific attitude, and problem-resolving competence within and beyond the subject of the course.

Contents

- Introduction to scientific reasoning and conduct
- Evolution, evolutionary relationship and diversity
- Origin and evolution of the Vertebrates from the Chordates
- Principles of cladistics and systematics of vertebrates
- Nomenclature in Veterinary Anatomy
- Anatomy of the locomotory system and biomechanics
- Anatomy of the digestive system. Food choice, feed intake and digestion
- Anatomy of the urogenital system. Water balance. Reproductive strategies in vertebrates
- Integumentary system and external protection

- Anatomy of respiration and circulation. Oxygen intake and distribution in vertebrates
- Lymphoid system
- Endocrine organs
- Anatomy of the central, peripheral and autonomous nervous system
- Anatomy of the sense organs. Senses & perception in vertebrates

The anatomical chapters focus on the typical domestic animals: dog, cat, horse, ox, goat, sheep, pig & chicken. Apart from this, also the general anatomy of birds and fishes is studied in a separate chapter. The comparative study of vertebrates widens the view towards all classes of vertebrate animals, in particular the species relevant to the veterinary environment such as 'new' and exotic pets, livestock, draft animals, endemic wildlife and invasive exotics, zoo and circus animals, laboratory animals as well as the human being.

Initial competences

No specific requirements. Subscription to this course is only allowed when all requirements concerning the 'individual course trajectory' for that specific academic year are met.

Final competences

- 1 Apply swiftly the terminology used to describe and define an anatomical view, orientation or section plane.
- 2 Correctly situate a given anatomical structure on a figure, picture or anatomical specimen of any domestic animal.
- 3 Name an anatomical structure, relevant to veterinary medicine, indicated on a figure, picture or anatomical specimen by its official term.
- 4 Describe the anatomical organisation and function of anatomical structures, organs and systems.
- 5 Indicate and compare the variation and differences in organisation and lay-out of anatomical structures between the various domestic animals.
- 6 Display and explain by means of an own; simplified hand drawn sketch the anatomical configuration of the following structures:
 - Organisation, insertion and action of the muscles
 - General configuration of all major joints
 - Position and lay-out of the elements of the digestive system in the different domestic animals
 - In general overview: the position of the organs and (suspensory) ligaments and subdivision of the body cavities
 - Anatomy and lobulation of the liver
 - Anatomy of the kidney
 - Anatomy of the male and female genital tract
 - Larynx and hyoid apparatus
 - Lobulation of the lungs
 - General anatomical configuration of the heart
 - Course of the major arteries, veins and nerves alongside the skeleton, muscles and organs
 - General layout of the central nervous system
 - Topography of the lymph nodes relevant to veterinary medicine
 - Anatomy of the eye (longitudinal cross-section)
- 7 Recognize bones, parts of the skeleton and individual organs, and attribute them to the correct domestic animal species.
- 8 Use the correct terminology and academic language to describe anatomical structures
- 9 Explain the general layout, specific adaptations and specific functioning of organs, structures and systems from evolutionary perspective (origin, development, gradual change and adaptation, specialisation, diversity).
- 10 Be able, by well-founded reasoning, to put forward a hypothesis to explain change on population level and fixation of characteristics in the population on a given example, based on evolutionary mechanisms as provided in the courses.
- 11 Build and test, through scientific reasoning, a solid hypothesis on the identification and classification of an unknown animal species based on a number of morphological and functional characteristics offered for this determination.
- 12 Have broad insights in the general anatomy of fishes and birds.
- 13 Have a basic knowledge on the general anatomy of mammals falling outside the direct scope of veterinary medicine (including man), with a special focus on the significant anatomical differences between those species and domestic animals.
- 14 Have some basic knowledge on the general anatomy of amphibians and reptiles, whereas relevant for veterinary medicine.

- 15 Illustrate the origin and evolution of vertebrates, as well as their classification based on these insights.
- 16 Apply the principles of determination of evolutionary relationship by means of the method of maximal parsimony.
- 17 Formulate and defend a scientifically founded consensus on a controversial or ambiguous subject, reached after group discussion with peers.
- 18 Master the basic skills of anatomical dissection.
- 19 Realize the need for and correctly apply the (bio)safety measures when working with animal cadavers.
- 20 Handle animals remain that are used for education purposes in a respectful and rational way.

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

Guided self-study, demonstration, lecture, practicum, lecture: plenary exercises, online demonstration, online lecture

Extra information on the teaching methods

Learning material is predominantly offered via well-structured knowledge clips online.

Subsequently, in the lectures, some inconsistencies or peculiarities are highlighted and clarified, and broader associations between course elements are unravelled.

The autonomously processing of the 'osteology' will be monitored as part of the permanent evaluation.

Exercises and practicals are used to support and guide the self-tuition, to illustrate and apply the subjects as taught in the lectures and to train the essential practical skills.

Learning materials and price

An extensive syllabus, knowledge clips with drawings and online demonstrations, guide to the practicals, the freely accessible didactic collection of the museum of Morphology, anatomical specimens, of which the osteological specimens can be borrowed for group study, a reference list of textbooks that are also available for consultation at the department's library

References

Course content-related study coaching

There is no dedicated course-specific monitoring and support provided.

Specific instructions and examples for/of the examination are given during the courses and practicals. A staff member is permanently available during the practicals to guide the exercises and answer questions. All educating staff of the department can be consulted (after appointment) for further support.

Evaluation methods

end-of-term evaluation and continuous assessment

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

Written examination with open questions

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

Written examination with open questions

Examination methods in case of permanent evaluation

Oral examination, participation, report

Possibilities of retake in case of permanent evaluation

examination during the second examination period is possible in modified form

Extra information on the examination methods

The written examination features a mix of large open questions and short fill-out questions, ranging over the entirety of the course subjects. A part of the examination refers to the practicals (interrogation via labelled pictures).

A non-binding intermediate examination takes place in the examination period of the first semester. The subjects that will be interrogated are clearly delineated by the teacher during the first semester. Students who pass this examination can opt to skip these subjects (and maintain their scores) at the actual first examination in the second semester examination

period. However, this exemption is no longer valid the second chance examination. The permanent evaluation includes the active participation in the practicals, practical reports and the evaluation of the self-tuition in osteology. The latter evaluation is done in several sessions during the academic year in which the student is asked to name and/or indicate specific anatomical orientation points, bones etc... on (parts of) a skeleton of a dog, horse and ox. A retake of this evaluation is also possible between the first and second chance examination period.

The type of evaluation can be adapted according to regulations and measures regarding the coronavirus outbreak. An online test in which anatomical structures must be recognised on photo is one of the possibilities of such alternative.

Calculation of the examination mark

The score for the permanent evaluation makes up 1/5 of the total score. However, a student needs at least a mark of 8/20 both for this evaluation as for the theoretical exam separately to be able to pass for the entire examination.

Repeatedly and deliberately not participating in the practical courses can result in a fail mark for the permanent evaluation.

Facilities for Working Students

Students who have an employment cannot be exempted from participating in the practicals. They can however follow these practicals according to a personalised scheme that has been approved by the responsible teacher in advance.