UCLouvain

lbio1333

2024

Integrated animal biology: circulation, respiration, digestion and excretion

3.00 credits	30.0 h + 10.0 h	Q2

Teacher(s)	Dumont Patrick ;Gofflot Françoise ;Rezsohazy René ;
Language :	French
Place of the course	Louvain-la-Neuve
Prerequisites	To follow this course, it is necessary to master the knowledge and skills developed in the courses LBIO1112 and LBIO1234A
Main themes	The "Integrated Animal Biology" courses aim to give students an integrated and multidisciplinary view of the major systems of functioning of animal organisms. The aim of these courses is to study the functioning of large systems, focusing on mammals with a clear predominance for the human species, but without neglecting the criteria for the evolution and adaptation of systems according to the type of organism. The systems studied in this third module of "integrated animal biology" are the circulatory system, the respiratory system, the digestive system and the urinary system. In the lectures, for each system, we will describe the topographical structures and morphological characteristics; identify cell populations and their histological characteristics; explain basic physiological concepts; and establish the links between morphological/histological elements and the performance of various functions. During the practical work, students will have the opportunity to analyse and compare the anatomy of all the systems seen in the three modules of "integrated animal biology" through dissections of different animal models.
Learning outcomes	**At the end of this learning unit, the student is able to :** • describe the anatomical and topographical structure of the 4 biological systems covered in the course ; • identify the cell populations and their histological characteristics; • demonstrate an understanding of the general principles of the functioning of the 4 biological systems covered in the course; • make the links between the structures and functions of the 4 biological systems; • understand the pathophysiological dysfunctions of the 4 systems studied; • establish the links between the functioning of an organism and its environment; • to identify and compare the anatomical structure of the different systems seen in the "integrated animal biology" courses on different vertebrate animal models.
Evaluation methods	The evaluation aims to assess the mastery of essential learning outcomes for the different sections, as well as for the practicals. The theoretical exam is an oral exam with open questions on all the systems studied during the year. The student's ability to make connections between the different systems as well as his/her reasoning ability will be part of the evaluation. The practical work exam is also an oral exam. The student should be able to identify, locate and name the structures and organs during a dissection exercise similar to those carried out during the year. Students are also asked to make connections between systems. The final mark is the weighted average of the marks obtained for the different theoretical sections and the practical part will account for 3/20th of the final mark. In case of a severe failure to one of the questions relative to the theoritical sections, the overal mark might reflect this as a failing grade.
Teaching methods	The teaching methods aim to achieve learning outcomes by implementing two approaches to acquire distinct and complementary skills. The theoretical approach aims, for each system, 1) to describe topographic structures and morphological characteristics, 2) to identify cell populations and their histological characteristics, 3) to understand fundamental physiological concepts; 4) to link the topographical, histological and physiological characteristics of the organs necessary for the understanding their function.It involves *ex cathedra* lectures, with powerpoint projections and blackboard drawings. The practical approach gives students the opportunity to analyze and compare the anatomy of all the systems studied in this course, but also in the three modules of "integrated animal biology", through dissections of different animal models. These practicals thus allows for the integration of all the systems studied in the context of the whole organism.
Content	For the circulatory system: • comparative anatomy and fundamental processes • core, structure and functions

	• the vessels: arteries, microcirculation, veins • regulation of the circulatory system For the respiratory system: • comparative anatomy and fundamental processes • topographical and histological anatomy of the respiratory tract • gas exchanges: processes and regulation For the digestive system • comparative anatomy and fundamental processes • general structure of the digestive tract • structure-function links of the different segments • Ancillary glands: liver and biliary tract, pancreas For the excretory system • urinary tract morphology • the kidney: structure-function links of the different segments • urine formation: basic processes and regulation • water and electrolyte balance • the urinary tract The organs/structures of the different systems taught in the lectures will be observed and compared during the dissection sessions of different animal models.
Bibliography	Atlas d'Histologie Fonctionnelle de Weather Principes d'Anatomie et de Physiologie, Tortora Biologie humaine. Anatomie et physiologie, E. Marieb Physiologie Humaine. Sherwood Review of Medical physiology, W.F. Ganong Physiologie animale, R. Gilles
Other infos	Attendance at practical work is compulsory. The titulars of the course may, under article 72 of the General Regulations for Studies and Examinations, propose to the jury to oppose the registration of a student who has not attended the various sessions of the TPs (without justificatives), during the January / June or September session.
Faculty or entity in charge	BIOL

Programmes containing this learning unit (UE)

Program title	Acronym	Credits	Prerequisite	Learning outcomes
Master [120] in Biochemistry and Molecular and Cell Biology	BBMC2M	3		🔍
Bachelor in Biology	BIOL1BA	3		🔍
Minor in Biology	MINBIOL	3		🔍