

COURSE LAYOUT

1. GENERAL

SCHOOL	ANIMAL BIOSCIENCES		
DEPARTMENT	ANIMAL SCIENCE		
STUDY LEVEL	B.Sc. - CORE CURRICULUM COURSE		
COURSE CODE	0011	SEMESTER	3^o
COURSE TITLE	ANIMAL ANATOMY AND HISTOLOGY		
INDEPENDENT TEACHING ACTIVITIES		WEEKLY TEACHING HOURS	ECTS
Theory: Lectures		3	
Laboratory		3	
			6
COURSE TYPE	Field of Science - Scientific region		
PREREQUISITES	CELLULAR AND MOLECULAR BIOLOGY		
LANGUAGE	GREEK		
IS THE COURSE OFFERED for ERASMUS STUDENTS?	NO		
COURSE WEB PAGE (URL)	https://mediasrv.aua.gr/eclass/courses under construction		

2. LEARNING RESULTS

Learning Outcomes
<p>The course Animal Anatomy and Histology describes animal body structure and thus sets the basis for understanding the physiological mechanisms of animal functions (physiology). It aims to present a review of the science of anatomy and histology and their terminology, using literature sources inclusive of acclaimed course books and original ground breaking papers. It aims to present tissue formation and structure, as well as the factors affecting histogenesis and the ways cells and tissues interact with each other. It aims to describe animal body structure, combining macro- and micro-anatomy (histology), pointing out structural differences between various species (comparative anatomy). It also aims to present basic methods used by anatomy and histology, their potential and limitations. It aims to train students to identify microscopy tissue samples and images, as well as anatomical preparations.</p> <p>Upon completion of the course the student should be in a position to:</p> <ul style="list-style-type: none"> • Understand international and Greek terminology of anatomy and histology. • Comprehend animal body structure at the macro- and microscopic level and relate structure to function. Point out structural anomalies and relate these with animal physiology dysfunctions and diseases later during the study of other courses. • Identify tissue and anatomy samples and the animal species from which such samples were removed (comparative anatomy). • Understand the methods used for the study of anatomy and histology, as well as their potential and limitations. • Use safely and efficiently the necessary laboratory equipment and consumables (microscopes, image analysis), combining literature sources and World Wide Web. <p>According to Bloom a student should be in a position to:</p> <ol style="list-style-type: none"> 1. Describe animal body structure, recognize tissues, organs and systems, as well as the animal

- species and define structural anomalies. [KNOWLEDGE]
2. Compare structural differences and relate these to specific animal species functions. [UNDERSTANDING]
 3. Examine macro- and microscopic samples and relate to specific animal species tissues, organs and systems. [APPLICATION]
 4. Combine macro- and microscopic observations, methods and literature and thus differentiate amongst specific animal species tissues, organs and systems. [ANALYSIS & SYNTHESIS]
 5. Compare animal body structure and relate to their specific functions. [EVALUATION]

General Competence

- *Search, analysis and synthesis of data, using the required technologies*
- *Decision making*
- *Autonomous work*
- *Teamwork*
- *Work in multidisciplinary environment*
- *Production of new research ideas*
- *Respect of natural environment*
- *Promotion of free, constructive and inductive thinking*

3. COURSE CONTENT

- i. Histogenesis. Animal cell and extracellular matrix.
- ii. Tissue description: epithelium, connective and adipose tissue, cartilage and bone, muscle, nervous tissue, blood and lymph.
- iii. Osteology. Arthrology. Myology. Anatomy, comparative anatomy and histology.
- iv. Anatomy, comparative anatomy and histology of blood and lymph circulatory systems.
- v. Anatomy, comparative anatomy and histology of respiratory system.
- vi. Anatomy, comparative anatomy and histology of gastrointestinal system. Ruminants and monogastric animals. Liver. Pancreas.
- vii. Anatomy, comparative anatomy and histology of urinary system.
- viii. Anatomy, comparative anatomy and histology of male and female genital systems.
- ix. Anatomy, comparative anatomy and histology of central and peripheral nervous systems.
- x. Anatomy, comparative anatomy and histology of endocrine system.
- xi. Sensory organs of smell, taste, vision, hearing and space.
- xii. Anatomy, comparative anatomy and histology of skin. Mammary gland.
- xiii. Anatomy, comparative anatomy and histology of avian species.

4. TEACHING AND LEARNING METHODS - Evaluation

TEACHING METHOD	In class, face to face.	
USE OF INFORMATICS and COMMUNICATION TECHNOLOGIES	PowerPoint presentations, multimedia and imaging systems, and world wide web. Use of light and fluorescence microscopes and stereoscopes fitted with digital cameras and connected with computerised image analysis software. Use of inverted microscopes fitted with micromanipulation equipment. Embryo cultures. Student learning support by e-class. Communication with students via e-mail.	
TEACHING ORGANISATION	Activities	Work load per semester (hrs)
	Lectures	39
	Laboratory practice	36
	Literature search and	25

	analysis	
	Self study	50
	Total Course (25 hours workload per credit unit)	150
STUDENTS EVALUATION	<p>Evaluation language: Greek</p> <p>Evaluation method: Written final examination</p> <p>I. Theory (T): 60% of the final exam with short-answer questions.</p> <p>II. Laboratory (L): 40% of the final exam with multiple choice questions (50%) and microscopy histology slide description (50%).</p> <p>Final score: (T)+(L) = 60+40=100% of the total final score.</p>	

5. BIBLIOGRAPHY

-Proposed Literature:

- Θεοδωρόπουλος Γ., Χαδιώ-Μάντζαρη Στ., Μπαλάσκας Χρ., Οικονομόπουλος Ι. Λειτουργική Ανατομική και Φυσιολογία των Ζώων. ISBN-13: 978-618-80647-8-2. Εκδόσεις Utopia, 2014. Επιμέλεια- Μετάφραση του Functional Anatomy and Physiology of Domestic Animals, 4th edition, W.O. Reece, Wiley-Blackwell.
- Μπαλάσκας Χ., Μενεγάτος Ι. Έγχρωμος άτλας ανατομικής των παραγωγικών ζώων. ISBN 978-960-449-344-9. Εκδόσεις Α. & Σ. Σαββάλας Α.Ε., 2008. Βασισμένο στο McCracken T.O., Kainer R.A., Spurgeon T.L. "Spurgeon's Color Atlas of Large Animal Anatomy", ISBN 0-683-30673-1, Blackwell Publishing, 2006.
- Bowden S.J. Introduction to veterinary anatomy and physiology workbook. 2nd edition, Elsevier, 2009.
- Bacha W.J.Jr., Bacha L.M. Color atlas of Veterinary Histology. 2nd edition, Lippincott, Williams and Wilkins, 2000.
- Sirois M. Laboratory procedures for veterinary technicians. Elsevier, 2020.
- Hemanson J.W., de Lahunta A., Evans H.E. Milller and Evans' Anatomy of the dog. 5th edition, Elsevier, 2019.

-Related Scientific journals (non-exhaustive list):

Anatomical Record
Anatomy and Embryology
Cell
Cell and Tissue Research
Journal of Anatomy
Journal of Cytology and Histology
Journal of Histochemistry and Cytochemistry
Journal of Morphology
Nature
Nature-Cell Biology
Nature-Structural Biology