COURSE LAYOUT

1. GENERAL

SCHOOL	Animal Biosciences		
DEPARTMENT	Animal Science		
STUDY LEVEL	Undergraduate - Selection Course		
COURSE CODE	**140**	**SEMESTER**	3rd
DEPARTMENT TAKING THE COURSE	Crop Science		
COURSE TITLE	Anatomy and Physiology of Farm Animals		

INDEPENDENT TEACHING ACTIVITIES	**WEEKLY TEACHING HOURS**	**ECTS**
Theory: Lectures	2	2
Laboratory	2	2
		4

COURSE TYPE	Scientific area
PREREQUISITES	
LANGUAGE	Greek
IS THE COURSE OFFERED forERASMUS STUDENTS?	No
COURSE WEB PAGE (URL)	https://oeclass.aua.gr/eclass/courses/COMCOUR101/

2. LEARNING RESULTS

Learning Outcomes

The course Animal Anatomy and Histology describes animal body structure (anatomy) and function (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 groundbreaking 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 aims to present the mechanisms underlying function, bodily systems interactions and preserving homeostasis.
It aims to train students to identify microscopy tissue samples and images, as well as anatomical preparations.

Upon completion of the course the student should be able to:

- Understand international and Greek terminology of anatomy and physiology.
- 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.

According to Bloom a student should be able to:

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*
- *Desicion making*
- *Autonomus 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. Principles of histology. Tissue description.
ii. Molecular and cellular basis of physiology. Homeostasis.
iii. Osteology. Arthrology. Bone function. Myology. Types of muscle tissue. Muscle contraction and energy sources.
iv. Anatomy, and physiology of the central and peripheral nervous systems. Sensory organs of smell, taste, vision, hearing and space.
v. Anatomy, and physiology of the circulatory system. Heart physiology. Blood and lymph. Immune system.
vi. Anatomy, and physiology of the endocrine system. Hormone secretion and function.
vii. Anatomy, and physiology of the gastrointestinal system. Ruminants and monogastric animals. Liver. Pancreas.
viii. Anatomy, and physiology of the respiratory system.
ix. Anatomy, and physiology of the urinary system. Acid-base balance.
x. Anatomy, and physiology of male and female genital systems.
xi. Anatomy, and physiology of skin. Mammary gland. Thermoregulation.
xii. Anatomy, and physiology 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

<table>
<tr><td></td><td>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.</td></tr>
<tr><td>TEACHING ORGANISATION</td><td>
<table>
<tr><th>Activities</th><th>Workload per semester (hrs)</th></tr>
<tr><td>Lectures</td><td>26</td></tr>
<tr><td>Laboratory practice</td><td>12</td></tr>
<tr><td>Literature search and analysis</td><td>22</td></tr>
<tr><td>Self study</td><td>40</td></tr>
<tr><td>Total Course
(25 hours workload per credit unit)</td><td>100</td></tr>
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<tr><td>STUDENTS EVALUATION</td><td>Evaluation language: Greek

Evaluation method: Written final examination.
I. Theory (T): 60% of the final exam with short-answer questions.
II. Laboratory (L): 40% of the final exam with multiple choice questions (50%) and microscopy histology slide description (50%).
Final score: (T)+(L) = 60+40=100% of the total final score.</td></tr>
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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.

-Related Scientific journals (non-exhaustive list):

Anatomical Record
Anatomy and Embryology
Cell
Cell and Tissue Research
Journal of Anatomy
Journal of Comparative Physiology
Journal of Cytology and Histology
Journal of Physiology
Nature-Cell Biology
Nature-Structural Biology