UNIVERSITY of NICOSIA

Year 1

Course Title	**Body systems Histology and Development I**				
Course Code	**VET-102**				
Course Type	Required				
Level	Undergraduate				
Year / Semester	Year 1 / Semester 1 (Fall)				
Teacher's Name	**Course Lead:** Dr Georgios Nikolaou				
ECTS	6	Lectures		Laboratories	
Course Purpose and Objectives	The main objectives of the course are: • To acquire a basic background in histology and to understand the properties of cells and their interactions with one another as components of tissues and organs. • To understand how structure and function correlate at the microscopic level. • To be able to describe the normal structure and function of various cell types, tissues, and organs, and to differentiate their histological structures from each other through examination. • To acquire basic background on embryology and to understand the first weeks of development. • To describe the growth of the fetus and the maturation of the organ systems.				
Learning Outcomes	Week 1 The cell as a basic unit of tissues in health and disease: LOBs covered during the lectures: Explain the nucleus and genome Basic understanding of DNA organization to Histones Coding and non-coding DNA Describe the structure and function of plasma membrane Microvilli and cilia Connect the essence of cellular metabolism to mitochondria and mitochondrial function Discusses the different modes of cellular imaging Understand the principles of cell population maintenance, with cell proliferation and the cell cycle Stem cells and stem cell medicine Week2 Introduction to Microscopy and Tissue Histology Basic understanding of the light microscope. Usages and limitations of light Microscopy Describe the histological methods commonly used to visualize cells and cellular elements in veterinary medicine Biopsy collection and submission Biopsy sectioning, processing embedding and sectioning and staining				

	Discuss other methods used veterinary medicine (immunohistochemistry, in-situ hybridization, immunofluorescence and electron microscopy) Practical-LOB covered: Visit to **NGN Veterinary Pathology Laboratory** to practice tissue embedding, sectioning and staining. Week 3 Basic Embryology Describe oogenesis (female gametogenesis) and spermatogenesis (male gametogenesis). Discuss the first week of development, from the ovarian cycle to cleavage and blastocyst formation. Discuss the development during the gestation period. Outline the development of embryoblast and trophoblast. Describe gastrulation. Outline the formation of the notochord and the establishment of body axes. Explain what is meant by genetic imprinting. Discuss the derivatives of the ectodermal germ layers and their defects. Discuss the derivatives of the mesodermal germ layers and their defects Week 4 Histology of epithelial tissues Describe the basic features of epithelial tissues and epithelial cells Describe the different types of epithelial cells and their functions Describe the different types of glands and their modes of secretion Practical-LOB covered: Be able to distinguish the different types of epithelial and glands under the light microscope Week 5 Histology of connective tissues Describe the basic features of connective tissues and connective tissue cells Describe the different types of connective tissue cells and their functions Describe the different types of glands and their modes of secretion

	Practical-LOB covered: Be able to distinguish the different types of connective tissues under the light microscope Week 6 Alimentary System I Description of the basic histological features and function of the oral cavity and teeth Description of the basic histological features and function of the esophagus Description of the basic histological features and function of the stomach of monogastric animals Description of the basic histological features and function of the stomachs of ruminants Practical-LOB covered: Be able to distinguish and describe the tongue, lips and esophagus under the light microscope Week 7 Alimentary System II Description of the basic histological features and function of the small intestine Description of the basic histological features and function of the large intestine Description of the basic histological features and function of the liver Description of the basic histological features and function of the exocrine pancreas Embryological development of the gastrointestinal system Practical-LOB covered: Be able to distinguish and describe the small intestine, liver and pancreas under the light microscope Week 8 Integumentary System I Description of the skin as an organ Description of the different layers of the skin The different layers of the epidermis and their functions Describe the dermis and subcutis and their functions. Describe the hair follicle and the hair cycle Practical-LOB covered:

	Be able to distinguish and describe the skin and its appendages under the light microscope Week 9 The integumentary system Description of the skin as an organ Description of the different different skin appendages and connect their structure to their function. • The sweat and sebaceous glands • Anal sacs and perianal glands • Clows of carnivores and hoofs of ruminants, pigs and horses Discuss the different histological features of the mammary gland Embryological development of the integumentary system Practical-LOB covered: Be able to distinguish and describe the mammary gland and hoof under the light microscope Week 10 The Immune system Describe the basic histological structure and function of: • Thymus. • Lymph nodes. • Bone marrow • The spleen in different animals. • Tonsils. Describe the histological structure and discuss the immunological importance of BALT, GALT and tissue resident macrophages and dendritic cells. Practical-LOB covered: Be able to distinguish and describe the lymph nodes, spleen and thymus under the light microscope
Language	English
Assessment	Writen exam (60%), practical exam (30%), participation (10%).