

DEPARTMENT OF VETERINARY ANATOMY

SEMESTER- I

VETERINARY GROSS ANATOMY-I (Osteology, Arthrology and Biomechanics)

VAN-111

Credit hours 1+2=3

THEORY

Osteology: Definition of the terms used in Veterinary Anatomy in general and osteology in particular. Classification, physical properties and structure of bones, Gross study of bones of appendicular and axial skeleton of Ox / Buffalo as type species and comparison with Sheep / Goat, Pig, Horse, Dog and Fowl with particular emphasis on their topography, contour, landmarks and functional anatomy from clinical and production point of view. Detail study of bones of head, neck, thorax, abdomen, pelvis, tail, fore limb and hind limb.

Arthrology: Classification and structure of joints. Articulation and ligaments of head, neck, thorax abdomen, pelvis, tail, fore limb and hind limb of Ox / Buffalo as type species, their structure, functional anatomy and comparison with other domestic animals from clinical and production point of view.

Biomechanics: Biomechanics and its application with reference to quadruped locomotion, kinetics of locomotion, stress and strains falling on locomotor apparatus, landmarks, angulation and weight bearing bones of ox, buffalo and comparison with other animals particularly horse and dog.

PRACTICAL

Comparative study of the bones of appendicular and axial skeleton, their structure, landmarks, angulation, weight bearing and function in Ox/ Buffalo and comparison with that of Sheep/Goat, Pig, Horse, Dog and Fowl and relate them in live animals. Dissection of joints of all the body regions of Ox/ Buffalo to study the structure and function and comparison with other domestic animals. Biomechanics and kinetics of locomotion.

SEMESTER-II

VETERINARY GROSS ANATOMY-II (Myology, Neurology, Angiology and Aesthesiology)

VAN -121

Credit Hours: 2+2=4

THEORY

Myology: Structural and functional classification of muscles. Gross study of skeletal muscles of head, neck, thorax, abdomen, pelvis, tail, fore limb and hind limb with their origin, insertion and action and their structural and functional importance from clinical and production point of view in Ox / Buffalo as a type species. Comparative study of muscles in other domestic animals.

Neurology: Study of central, peripheral and autonomic nervous system Gross study of meninges, brain, spinal cord, cranial and spinal nerves and their functional importance from clinical and production point of view. Gross morphology and disposition of the nerves of head, neck, thorax, abdomen, pelvis, tail, forelimb and hind limb in Ox / Buffalo as a type and comparative study in other domestic animals. Angiology: Gross morphology of heart and disposition of arteries, veins and lymphatic of head, neck, thorax, abdomen, pelvis, tail, forelimb and hind limb in Ox / Buffalo as type and comparison with that of Sheep / Goat, Pig, Horse, Dog and Fowl. Their importance from clinical and production point of view. Anesthesiology: Gross morphological study of the eye, ear, nose, hoof, horn and skin in Ox / Buffalo. Their functional importance and comparative study in other domestic animals Computer simulation for dissection and study of body parts.

(Note: The general outline of muscular, circulatory and nervous system be taken up in the beginning of this course to be followed by gross disposition of group of muscles, arteries, veins and lymphatics simultaneously region-wise.)

PRACTICAL

Demonstration of embalming of the carcass and preservation. Dissection/computer simulation models for dissection and demonstration of body parts.

Dissection of muscles of all body regions of Ox/ Buffalo, their location, functional role in the body and comparison with other species.

Study of brain and spinal cord in different domestic animals. Study of heart and major blood vessels in different species of animals Area of auscultation of heart.

Dissection of Wood vessels, lymphatics and nerves of head, neck, thorax, abdomen, pelvis, tail, forelimb and hind limb in Ox / Buffalo and comparative study in other domestic animals.

Demonstration of palpable Lymph nodes of the body. Study of the sites of cornual, auriculo palpebral, peterson's, infraorbital, radial, ulnar, median, paravertebral, epidural, pudental, perineal and tibial nerve blocks and their clinical importance.

Dissection for study of eye, ear, nose, hoof and horn.

SEMESTER- III

VETERINARY HISTOLOGY AND EMBRYOLOGY

VAN -211

Credit Hours 2+2=4

THEORY

General Histology: Structure of animal cell and basic tissues and their functional activity. Epithelia and their modifications. Connective tissue and its components including blood and bone. Muscular tissue types and their functional peculiarities. Neuron, nerve fibre and ganglion.

Systemic Histology: Study of microscopic structure of the organs of digestive, respiratory, urinary, reproductive, nervous and cardiovascular systems, sense organs, endocrines and lymphoid organs, of domestic animals and birds.

Embryology: Gametogenesis, fertilization, cleavage, gastrulation, and the development of foetal membranes in birds and mammals. Structure and types of mammalian placenta. Development of the organs of digestive, respiratory, urogenital, cardiovascular, nervous and locomotor system and organs of special sense and endocrine glands. Fetal circulation.

PRACTICAL

Microscopy and micrometry. Comparison of light and electron microscopy. Histological techniques, Processing of tissues for paraffin sectioning and Haematoxylin and Eosin staining. Microscopic examination and identification of basic tissue and their components. Examination of histological sections of various organs/systems of domestic animals and birds. Study of structure of mammalian ova and spermatozoa and egg of fowl. Study of the whole mount and serial sections of avian and mammalian embryo / foetus at different stages of development Microscopic anatomy of fetal membranes and placenta of various domestic animals.

SEMESTER- IV

VETERINARY SPLANCHNOLOGY AND APPLIED ANATOMY

VAN-221

Credit Hours 1+1=2

THEORY

Gross morphological and topographical study of various organs of digestive, respiratory, urinary, male and female reproductive, lymphatic and endocrine systems, Pleura and Peritoneum in Ox Buffalo as type and their comparison with that of Sheep/Goat, Pig, Horse, Dog and Fowl.

Different Terminology used in applied Anatomy. Palpable Anatomical body structures and their use in health and disease.

PRACTICAL

Demonstration and description of palpable anatomical structures on the body surface of live animal (head, neck, thorax, pectoral bones, pelvic bones, limbs). Outline of body cavities and study of organs of digestive, respiratory, urinary, reproductive, lymphatic and endocrine systems of Ox /Buffalo and their comparative anatomy in other species. Pleural and peritoneal reflections. Comparative topographic anatomy in live animals. Nerve blocks and their sites.

Applied anatomy of sites for thoraco-centesis, auscultation, abdominocentesis. rumenotomy, laparotomy, splenectomy, enterotomy, palpation of anatomical structures in the abdominal and perineal regions. Radiographic visualisation of gross anatomical features of various regions of the body. (Note: Computer simulation model studies shall be used for better understanding of the subject.)

REFERENCE BOOKS

1. The Anatomy of the Domestic Animals-R. Nile, A. Schummer, E. Seiferle.
2. The Anatomy of the Domestic Animals-Septimus Sisson
3. Clinical Dissection Guide for Large Animals Horse and Large Ruminants-
Georghe M. Contantinescu, Ileana A. Contantinescu
4. Primary Veterinary Anatomy- R.K. Ghosh.
5. Text Book of Veterinary Histology-H. Dieter Dellmann.
6. Atlas of Histology-Victor P. Eroschenko.
7. Human Embryology- Inderbir Singh.
8. Essentials of Veterinary Embryology-R. K. Ghosh.

9. Medical Embryology-Jan Langman
10. The Embryology of Domestic animals, developmental Mechanisms and Malformations-Drew M. Noden, Alexander Delahunta.
11. Developmental Biology-Scott F. Gilbert.
12. A colour Atlas of Avian Anatomy-J. Mc Lelland.
13. A colour Atlas of the Buffalo Anatomy-H. P. Singh & K. S. Roy, ICAR Publication.
14. A colour Atlas of Clinical Anatomy of the Dog & Cat-J. S. Boyd.
15. A colour Atlas of basic Histology-Irwin Berman.
16. A colour Atlas of Veterinary Anatomy of the Ruminants-
Raymond, R. Ashdown, Stanley done.
17. Applied Veterinary Anatomy-Alexander De Lahunta, Robert E. Habel.
18. Applied Anatomy of the Domestic Animals-P. A. Ommer, K. R. Harshan.
19. Applied Veterinary Histology-William J. Banks.
20. Colour Atlas of Veterinary Histology-William J. Bacha, Jr. Linda M. Bacha.
21. Histology- A Text and atlas-Michael, H. Ross. Gordon I. Kaye, Wojciech Pawlina.
22. Atlas of Feline Anatomy for Veterinarians-Hudson/ Hamilton.
23. Veterinary Neuro Anatomy and clinical Neurology-De. Lahunta.
24. Histological & Histochemical Methods- Theory & Practice-J. A. Kiernan.
25. Anatomy and Physiology of Farm Animals-R. D. Frandson, W. Leewilke, Anna Dee Fails.
26. Text book of Veterinary Anatomy-Dyce . sack. Wensing
27. Comparative anatomy of the Vetebrates-George C. Kent.
28. Miller's Anatomy of the Dog
29. A colour atlas of Anatomy of small laboratory animals-P. popesko, V. rajtova, J. Horak.
30. Comparative Veterinary Histology-Elizabeth Aughey, Fredric L. Frye.
31. A Practical guide to Vertebrate Mechanics-Christopher Mc Gowan, Julian Mulock.
32. A Comparative Methods approach to the Study of Oocytes and Embryos-
Joel. Richter.
33. Text book of Anatomy and Physiology-Anthony and Kolthoff.
34. Reproduction in Farm Animals-E. S. E. Hafez, B. Hafez.
35. Veterinary Obsterics and Genital diseases-Stephen J. Roberts.
36. Veterinary Surgical Techniques-Amresh kumar
37. Congenital Malformations in Laboratory and Farm Animals-
Kalman T. Szabo.
38. Vertebrate Embryology- Robert S. McEWEN.
39. Essentials of bovine Anatomy-K. M. Dyce and C. J. Wensing.