

A1.1 AGA 2110: Anatomy and Physiology of Farm Animals

A1.1.1 Background and Rationale

The aims of the course are to give the student an understanding of the macroscopic and microscopic structures of farm animals in order to appreciate the functions of the different parts of the body.

A1.1.2 Learning outcomes

At the end of the course students will be expected to:

Define anatomical terms

Identify gross anatomical parts of farm animals

Differentiate the micro anatomy of the various parts of an animal

Relate the different anatomical parts to the functions they perform

A1.1.3 Course content

1. Introduction to Anatomy

1.1 Introduction to different livestock species

1.2 Definition of macroscopic and microscopic anatomy

1.3 Descriptive terms useful in the study of anatomy

2. Review of the Structure of the Cell

2.1 The cell membrane

2.2 The cytoplasm and organelles

2.3 The nucleus

3. Tissues of the body

3.1 Epithelium

3.2 Connective tissue

3.3 Muscular tissue

3.4 Nervous tissue

4. The Skeletal System

4.1 Structure of the bone: Micro and macro anatomy of the bone

4.2 Classification of bones

4.3 Functions of bones

4.4 Divisions of the skeleton: Axial skeleton & Appendicular skeleton

5. The Muscular System

5.1 Microanatomy of muscle

5.2 Types of muscle: voluntary striated (skeletal) muscle; involuntary striated (cardiac) muscle; involuntary unstriated (smooth) muscle

5.3 Muscle attachments

5.4 Functional grouping of muscles

6. The Nervous System

6.1 Structure of the neuron

6.2 Classification of neurons

6.3 Organization of the nervous system

6.4 Anatomy of the Central Nervous System: brain, spinal cord

6.5 Anatomy of the Peripheral Nervous System: spinal nerves, cranial nerves, autonomic nervous system

7. The Endocrine System

7.1 Organization of the endocrine system

7.2 The endocrine glands: Pituitary, thyroid & parathyroid gland, pancreas, adrenal glands, gonads.

8. The Digestive System

8.1 Layers of the gastrointestinal tract (GIT)

8.2 Mouth: teeth, tongue, lips, cheeks, jaws and palates, salivary glands

8.3 Pharynx and oesophagus

- 8.4 Stomach: non-ruminant animals
- 8.5 Stomach: ruminant animals
- 8.6 Small and large intestines
- 8.7 Accessory digestive organs: pancreas, liver
- 8.8 Digestive system of the fowl
- 9. The Cardiovascular System**
- 9.1 General organization
- 9.2 The heart structure
- 9.3 Blood vessels: arteries, capillaries, veins, lymphatics
- 9.4 Pulmonary circulation,
- 9.5 Systemic circulation
- 9.6 Portal circulation
- 9.7 Lymphatic system
- 10. The Respiratory System**
- 10.1 Respiratory tract: nostrils, nasal cavity, pharynx, larynx, trachea, bronchi, bronchioles, alveolar ducts, alveoli, alveolar sacs
- 10.2 Lungs, pleura
- 10.3 Mechanics of respiration
- 11. The Urinary System**
- 11.1 Kidneys, ureters, bladder and urethra
- 11.2 Microanatomy of the nephron
- 12.0 The Mammary Gland**
- 12.1 Terminologies used in mammary anatomy
- 12.2 Structure of the cow's mammary gland
- 12.3 Blood supply to the mammary gland
- 12.4 Udder innervations
- 12.5 Microanatomy of the mammary gland
- 12.6 Mammary glands of other farm livestock species
- 13.0 The Reproductive System**
- 13.1 Female reproductive system: ovaries, uterine tubes (oviducts or fallopian tubes), uterine horns, uterus, vagina, vulva
- 13.2 Male reproductive system: scrotum, testis, epididymis, ductus deferens, spermatic cord, accessory sex glands, penis
- 13.3 Fowl reproductive system and egg structure
- 14.0 The Skin and Associated Structures**
- 14.1 Epidermis, Dermis and Hypodermis
- 14.2 Colour of the Skin
- 14.3 Hair and Coat Colour
- 14.4 Sebaceous and Sudoriferous Glands
- 14.5 The hoof of farm animals

A1.1.4 Assessment

Continuous Assessment	40%
Practical Examination	20%
Final Exams	40%

A1.1.5 Prescribed Textbook

Frandsen, R. D. and Purgeon T. L. 2009. **Anatomy and Physiology of Farm Animals**, 7th Edition; John Wiley and Sons / Lea Febiger; ISBN: 0813813948, 9780813813943.

A1.1.6 Recommended Textbooks

- 1) Garret, P. D. 1988. **Guide to Ruminant Anatomy based on Dissection of the Goat**. Iowa State University Press. ISBN: 0608079200, 9780608070202.
- 2) Heath E. and S. Olusanya. 1985. **Anatomy and Physiology of Tropical Livestock – Intermediate Tropical Agriculture Series**. Longman, London and New York. ISBN: 0582775191, 9780582775190