The Further Education and Training Awards Council (FETAC) was set up as a statutory body on 11 June 2001 by the Minister for Education and Science. Under the Qualifications (Education & Training) Act, 1999, FETAC now has responsibility for making awards previously made by NCVA.

Module Descriptor

Equine Anatomy & Physiology

Level 6 N32994

www.fetac.ie
Module Title: Equine Anatomy & Physiology

Module Code: N32994

Level: 6

Credit Value: 1 credit

Purpose: The module is designed to provide the learner with the relevant in-depth knowledge and understanding of the structure and function of the horse’s body to enable the learner to provide better horse care.

Preferred Entry Level: Level 4 Certificate, Leaving Certificate or equivalent qualifications and/or relevant life and work experiences.

Special Requirements: None.

General Aims

Learners who successfully complete this module will:

8.1 acquire knowledge of the anatomical structures of the equine body
8.2 acquire an understanding of the physiological processes that take place in the equine body
8.3 understand the interrelationship between the different systems of the equine body
8.4 acquire the theoretical knowledge of how typical disorders of the equine body occur

Units

Unit 1 Basic Biology
Unit 2 Skeletal & Muscular Systems
Unit 3 Circulatory System
Unit 4 Respiratory System
Unit 5 Digestive System
Unit 6 Reproductive System
Unit 7 Urinary System
Unit 8 Nervous and Endocrine Systems
Unit 9 Integumentary System
10 Specific Learning Outcomes

Unit 1 Basic Biology

Learners should be able to:

10.1.1 Describe the structure and function of the animal cell and its organelles and list the different cell types
10.1.2 Differentiate between osmosis and diffusion in relation to intercellular transport
10.1.3 Differentiate between mitosis and meiosis
10.1.4 Explain cellular respiration
10.1.5 Outline the different tissue types that could be found in any given organ
10.1.6 Discuss the evolutionary changes that have taken place in the horse

Unit 2 Skeletal and Muscular Systems

Learners should be able to:

10.2.1 Explain the growth of bone and factors that influence its development
10.2.2 Define Developmental Orthopaedic Disorder and give an example
10.2.3 Locate and differentiate between the different joints found within the equine body
10.2.4 Label a diagram of the tendons & ligaments of the lower leg of the horse and explain how tendon & ligament strain occurs
10.2.5 Differentiate the different skeletal muscle types
10.2.6 Explain the significance of skeletal muscle type on performance
10.2.7 Explain the likely cause and effect of Rhabdomyolysis on the horse’s muscles and suggest preventative methods
10.2.8 Outline the skeletal response to training
10.2.9 Outline the muscular response to training

Unit 3 Circulatory System

Learners should be able to:

10.3.1 Discuss the structure of the heart and describe the circulation of blood
10.3.2 List the constituents of blood and describe how each plays a role in the functions of the cardiovascular system
10.3.3 Explain what may be measured in a haematological and biochemical analysis and express the significance of such measurements
10.3.4 Explain how the pacemaker works and discuss its role in the cardiac cycle
10.3.5 Outline the cardiovascular response to training
10.3.6 Describe how the cardiovascular system and the lymphatic system play a part in the body’s defence mechanism
10.3.7 List four cardiovascular disorders and give a description of each
10.3.8 Explain the effect of the equine spleen in increasing blood volume during exercise

Unit 4 Respiratory System

Learners should be able to:
10.4.1 Describe aerobic respiration
10.4.2 Outline the roles played by the respiratory system and the circulatory system in aerobic respiration
10.4.3 Label a diagram of the respiratory system and outline the functions of each part
10.4.4 Describe the process of gaseous exchange
10.4.5 Summarise the breathing mechanism
10.4.6 Indicate how normal function of the respiratory system may be disturbed and describe some common ailments of the respiratory system
10.4.7 Explain the anatomy involved with and the process of the following terms:
   - Laryngeal hemiplegia (roaring)
   - Dorsal displacement of the soft palate (gurgling)
   - Recurrent airway obstruction (heaves)
   - Exercise induced pulmonary haemorrhage (bursting)
10.4.8 Explain the following terms:
   - Tidal volume
   - Inspiratory reserve volume
   - Expiratory reserve volume
   - Vital capacity and residual volume

Unit 5 Digestive System

Learners should be able to:
10.5.1 Compare the digestive system of the horse with that of monogastrics and ruminants
10.5.2 Label and discuss the functions of the different regions in the stomach
10.5.3 Explain how food is digested in the pre-caecal section of the digestive tract

10.5.4 Summarise the fermentative process

10.5.5 Describe how modern day feeding practices have an impact on the overall health and functioning the GI tract

10.5.6 List common ailments of the digestive system and discuss preventative measures

Unit 6 Reproductive System and Basic Genetics

Learners should be able to:

10.6.1 Label a diagram of the female reproductive organs and describe their function

10.6.2 Explain what changes occur behaviourally and physiologically to the mare during Oestrus cycle and summarise how human intervention can manipulate the Oestrus cycle

10.6.3 Label a diagram of the male reproductive organs and briefly describe how sperm is produced

10.6.4 Describe the process of implantation and maturation of the zygote and outline the maturation process of the embryo

10.6.5 Outline the stages of parturition and associated problems

10.6.6 Explain the terms Gene, DNA, Dominant & Recessive traits, and chromosomes

10.6.7 Describe using Mendel’s square how genetic variation occurs

Unit 7 Urinary System

Learners should be able to:

10.7.1 Draw a labelled diagram of the equine urinary system

10.7.2 Outline the gross and microscopic structure of the kidney

10.7.3 Explain the filtration, secretion and re-absorption of fluids in the kidney to form urine

10.7.4 Briefly outline the regulation of salts by the kidneys

Unit 8 Nervous and Endocrine Systems

Learners should be able to:

10.8.1 Describe the structure and function of the equine nervous system

10.8.2 Name and give the role of the different types of neurone

10.8.3 Locate and give the function of the different parts of the brain

10.8.4 Define the term hormone

10.8.5 Distinguish between endocrine and exocrine glands
10.8.6 Compare the action of the endocrine system with the nervous system

10.8.7 Give the location of each endocrine gland, a hormone produced there and its function

Unit 9 Integumentary System

Learners should be able to:

10.9.1 Identify the components of skin
10.9.2 Describe the functions of skin
10.9.3 Outline common skin disorders and discuss preventative measures
10.9.4 Label a diagram of the equine hoof
10.9.5 Describe the role of laminae in the equine hoof
10.9.6 Identify common hoof disorders and possible treatments

11 Portfolio of Assessment

Summary Examination (Theory Based) 60%
Assignments (2) 40%

11.1 Examination The internal assessor will devise a theory-based examination that assesses the candidate’s ability to recall and apply theory and understanding, requiring responses to a range of short answer and structured questions. The questions may be answered in a variety of media such as in writing, orally etc.

The examination will be based on the full range of specific learning outcomes and will be 2 hours in duration.

The format of the examination will be as follows:

Section A
12 short answer questions
Candidates must answer 10 (2 marks each)

Section B
5 Structured questions
Candidates are required to answer 4 (10 marks each)

11.2 Assignment (2) Each candidate will complete two assignments.

The internal assessor will devise a brief that requires the candidate to demonstrate an understanding and application of a range of specific learning outcomes. Each assignment will be carried out over a period of time specified by the internal assessor.
Topics for the two assignments will be drawn from different units of the module. Candidates will plan and carry out an investigation into the chosen topic. The investigation may be a practical experiment, a small scale survey, or any other appropriate form. The candidate will document all stages of each assignment.

Each assignment may be presented in a variety of media e.g. written, audio, graphic and visual or a combination of these. Audio and video evidence must be provided on tape.

Each assignment carries equal marks.

**12 Grading**

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<th>Grade</th>
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* This mark should be transferred to the Module Results Summary Sheet

* The internal assessor is required to enter here the question numbers answered by the candidate.
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<td>Clear demonstration of understanding and application of concepts in equine anatomy and physiology</td>
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<td>Effective use of analysis to draw logical conclusions</td>
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*This mark should be transferred to the Module Results Summary Sheet*

**Internal Assessor’s Signature:** ____________________________  **Date:** ____________

**External Authenticator’s Signature:** ____________________________  **Date:** ____________
# FETAC Module Results Summary Sheet

**Module Title:** Equine Anatomy and Physiology  
**Module Code:** N32994

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**Signed:**  
**Internal Assessor:** ___________________________  
**Date:** ___________________________

This sheet is for internal assessors to record the overall marks of individual candidates. It should be retained in the centre. The marks awarded should be transferred to the official FETAC Module Results Sheet issued to centres before the visit of the external Authenticator.

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Grade*  
D: 80 - 100%  
M: 65 - 79%  
P: 50 - 64%  
U: 0 - 49%  
W: candidates entered who did not present for assessment