

Module code: MOD010982	Version: 1 Date Amended: 07/Mar/2025
------------------------	---

1. Module Title
Exercise Physiology and Nutrition

2a. Module Leader
Briony Witherow

2b. School
Writtle School of Agriculture, Animal and Environmental Sciences

2c. Faculty
Faculty of Science and Engineering

3a. Level
5

3b. Module Type
Standard (fine graded)

4a. Credits
15

4b. Study Hours
150

5. Restrictions			
Type	Module Code	Module Name	Condition
Pre-requisites:	None		
Co-requisites:	None		
Exclusions:	None		
Courses to which this module is restricted:	BSc Equine Science		

LEARNING, TEACHING AND ASSESSMENT INFORMATION

6a. Module Description

This module dives into an in-depth exploration of the anatomical and physiological responses of horses to exercise and training, and how nutrition plays a key role in supporting equine sports performance. You'll examine the energetics of exercise, focusing on the interplay between fuel stores, metabolic processes, and nutritional strategies that optimise energy availability and utilisation during physical activity.

You'll learn to critically evaluate both training methods and nutritional interventions, developing tailored programmes for various equine disciplines that incorporate dietary consideration. The module also explores how technology can be used to assess performance, the challenges of exercising horses in different climates, and strategies to prevent overtraining and fatigue. Ethical considerations related to nutrition and welfare in high-performance equine athletes is also considered, helping you understand how to balance performance goals with animal welfare.

This module prepares you to understand and manage the complex interactions between exercise physiology and nutrition, equipping you with the skills to support equine athletes' performance and welfare in various contexts and disciplines.

6b. Outline Content

- Energetics of Exercise: Understanding energy partitioning, fuel stores, and how they are utilised during physical activity.
- Muscle Fibres and Metabolic Pathways: Analysis of muscle fibre types, energy pathways, and their relationship to exercise and fuel utilisation.
- Cardiovascular (CVS), Musculoskeletal (MSK), and Respiratory Responses to Exercise: Physiological adaptations to exercise and training in these systems.
- Training Program Development: Creating programs tailored to the physiological and nutritional needs of specific equine disciplines.
- Nutritional Support for Performance: Role of macronutrients and micronutrients, clinical nutrition, and considerations for feeding practices.
- Technology in Performance Assessment: Use of heart rate monitors and other technologies for evaluating equine performance.
- Exercise in Challenging Climates: Addressing heat, hydration, and electrolyte balance to maintain performance and welfare.
- Overtraining and Fatigue: Examining how exercise and inadequate nutrition contribute to fatigue and identifying strategies to mitigate these effects.
- Ethics of Feeding for Performance: Evaluating welfare concerns related to diet in high-performance settings, such as racing.

6c. Key Texts/Literature

The reading list to support this module is available at: <https://readinglists.aru.ac.uk/>

6d. Specialist Learning Resources

Research equipment/technology incl. Heart rate monitors. Horses and yard resource.

7. Learning Outcomes (threshold standards)		
No.	Type	On successful completion of this module the student will be expected to be able to:
1	Knowledge and Understanding	Examine and apply knowledge of anatomical, physiological, and metabolic responses to exercise, including the use of analytical technology relevant to performance testing.
2	Knowledge and Understanding	Critically evaluate the nutritional requirements of equine athletes, considering the metabolic demands of different exercise intensities and disciplines, and the role of dietary strategies in enhancing performance and recovery.
3	Intellectual, practical, affective and transferrable skills	Critically evaluate a range of training methods and interventions to improve physical performance in horses.
4	Intellectual, practical, affective and transferrable skills	Design training programs that consider the physiological, nutritional, and environmental demands of different equine disciplines, emphasising the role of balanced nutrition in optimising performance.

8a. Module Occurrence to which this MDF Refers				
Year	Occurrence	Period	Location	Mode of Delivery
2026/7	ZZF	Template For Face To Face Learning Delivery		Face to Face

8b. Learning Activities for the above Module Occurrence			
Learning Activities	Hours	Learning Outcomes	Details of Duration, frequency and other comments
Lectures	33	1-4	3 hours per week over 1 Trimester – 11 teaching weeks per Trimester
Other teacher managed learning	3	1-4	Revision and assignment support – 1 session per trimester (week 12)
Student managed learning	114	1-4	Independent study – outside reading and developing ideas to achieve learning outcomes
TOTAL:	150		

9. Assessment for the above Module Occurrence					
Assessment No.	Assessment Method	Learning Outcomes	Weighting (%)	Fine Grade or Pass/Fail	Qualifying Mark (%)
010	Practical	1-4	60 (%)	Fine Grade	30 (%)
A podcast					
Assessment No.	Assessment Method	Learning Outcomes	Weighting (%)	Fine Grade or Pass/Fail	Qualifying Mark (%)
011	Coursework	1-4	40 (%)	Fine Grade	30 (%)
A 1,500-word reflective commentary will accompany the podcast series.					

In order to pass this module, students are required to achieve an overall mark of 40% (for modules at levels 3, 4, 5 and 6) or 50% (for modules at level 7*). In addition, students are required to: (a) achieve the qualifying mark for each element of fine graded assessment as specified above (b) pass any pass/fail elements [* the pass mark of 50% applies for all module occurrences from the academic year 2024/25 – see Section 3a of this MDF to check the level of the module and Section 8a of this MDF to check the academic year]					
--	--	--	--	--	--