

Sul Ross State University
ANSC 3312: Equine Exercise Physiology
Tuesday & Thursday 8:00 – 9:15 am (RAS 132)

Instructor:

Dr. Perse McCrae

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Office hours: Monday & Wednesday 10:00-11:30 am or by appointment

Course description:

An exploration of physiological and environmental factors associated with equine athletic performance. The course will cover adaptation of the respiratory, cardiovascular, musculoskeletal, and support systems to training and exercise. Common athletic injuries encountered in conditioning programs will also be discussed.

Course objectives:

1. Students will demonstrate basic scientific knowledge of the physiological systems of horses and the role they play in athletic performance.
2. Understand the integration of cardiovascular, respiratory, and musculoskeletal systems in elite equine athletes.
3. Learn to critically evaluate emerging research in the field of equine exercise physiology.

Marketable Skills for Department of Animal Science:

1. Knowledge of techniques and equipment for planting, growing, and harvesting food products (both plant and animal) for consumption, including storage/handling techniques.
2. Knowledge of plant and animal organisms, their tissues, cells, functions, interdependencies, and interactions with each other and the environment.
3. Understanding the implications of new information for both current and future problem solving and decision-making.
4. Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
5. Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions. Communicating finding in both oral and written form at a level appropriate for the needs of the audience.

Departmental projected learning outcomes:

1. Demonstrate the basic skills of interpreting research data gathered in an agricultural context.
2. Apply critical thinking skills to mitigate potential challenges in diverse animal sciences and related agricultural industries.
3. Demonstrate the ability to communicate through written, spoken, and graphical methods.

Required text:

Equine Exercise Physiology: the science of exercise in the athletic horse. 2008. K.W. Hinchcliff, R.J. Geor, A.J. Kaneps.

Free PDF Access: <http://docshare04.docshare.tips/files/7036/70366245.pdf>

Academic honesty:

The University expects all students to engage in all academic pursuits in a manner that is beyond reproach and to maintain complete honesty and integrity in the academic experiences both in and out of their classroom. The University may initiate disciplinary proceedings against a student accused of any form of academic dishonesty, including but not limited to, cheating on an examination or other academic work, plagiarism, collusion, and the abuse of resource materials. For more information visit:

https://www.sulross.edu/sites/default/files/sites/default/files/users/docs/stulife/student_conduct_discipline.pdf

Students with special needs:

Sul Ross State University (SRSU) is committed to equal access in compliance with Americans with Disabilities Act of 1973. It is SRSU policy to provide reasonable accommodations to students with documented disabilities. It is the Student's responsibility to initiate a request. Please contact me, Ms. Rebecca Greathouse Wren, M.Ed., LPC-S, Director/Counselor, Accessibility Services Coordinator, Ferguson Hall (Suite 112) at 432.837.8203; mailing address is P.O. Box C-122, Sul Ross State University, Alpine, Texas 79832. Students should then contact the instructor as soon as possible to initiate the recommended accommodations.

Absence & late assignment policy:

It is expected that ALL assignments will be submitted on time. Valid absences include 1) medical emergencies with signed note from a doctor, 2) participation in a SRSU-sanctioned activity with a letter from faculty advisor, or 3) other emergencies or conflicts that are allowed at the professor's discretion. Students are expected to make up missed work within a week of original due date. **Late assignments will be accepted for 4 days following the initial due date and time with a 20% penalty per day late.**

Assignments:

Journal club reflections: 60 pts for 6 (total = 360)

There are 6 journal club classes throughout the semester. Each journal club will have two scientific papers assigned that you must read prior to class. You will write a one-page critical article review on ONE of the papers (12 pt. Times New Roman font, double spaced) explaining what the goal of the study was, how the authors conducted the research, what their results indicate and a critical review on how the research was carried out and interpreted. See rubric for all details. **Due: variable, see class schedule.**

Participation: 120 pts

You are expected to participate in lectures and journal clubs, including offering insights, asking questions, and participating in discussion. The journal clubs are an integral part of this course and failing to participate them will negatively impact your overall grade.

Fitness test: 150 pts

Design a fitness test for the discipline of your choosing. Detail how horses would be tested, including location, distances, personnel and equipment required, pros and cons, and expected outcomes. Explain how your test would distinguish a low-level from an elite horse within that

discipline and how it could be incorporated into research and clinical practice. See rubric for all details. **Due: December 3 by midnight.**

Points available:

Assignment	Points
Midterm Exam	200 pts
Participation	120 pts
Critical article reviews (60 pts per review, 6 reviews total)	360 pts
Fitness test	150 pts
Final Exam (Cumulative)	250 pts
Total	1080 Pts

Grading scale:
 A = 90-100%
 B = 80-89%
 C = 70-79%
 D = 60-69%
 F = below 60%

Tentative lecture schedule:

**This information should be treated as an outline – there may be alterations in sequence of topics.*

Date	Topic	Chapter
August 25	Introduction & how to read scientific papers	
August 27	Overview: The horse as an athlete	1.1
September 1	Muscle physiology	2.1
September 3	Muscle physiology	2.1
September 8	Skeletal physiology	2.2
September 10	Skeletal physiology	2.2
September 15	Muscle & skeletal journal club	
September 17	Tendon & ligament physiology	2.3
September 22	Tendon & ligament physiology	2.3
September 24	Joint physiology	2.4
September 29	Joint physiology	2.4
October 1	Tendon, ligament & joint physiology journal club	
October 6	Biomechanics of locomotion	2.5
October 8	Biomechanics of locomotion	2.5
October 13	Biomechanics journal club	
October 15	EXAM 1	
October 20	Respiratory physiology	3.2
October 22	Respiratory physiology	3.2
October 27	Respiratory journal club	
October 29	Cardiovascular function & oxygen transport	4.1
November 3	Cardiovascular function & oxygen transport	4.1
November 5	Cardiovascular journal club	
November 10	Metabolic responses to exercise & fitness testing	5.1, 1.2
November 12	Metabolic responses to exercise & fitness testing	5.1, 1.2
November 17	Metabolism & nutrition journal club	
November 19	Nutritional management of the equine athlete	5.3

November 24	FINAL EXAM	
November 26	THANKSGIVING HOLIDAY	
December 1	BEGIN ONLINE LEARNING	
December 3	Fitness test due	