

Sul Ross State University
ANSC 2315: Equine Exercise Physiology
Monday & Wednesday 9:30 – 10:45 am (RAS 132)

Instructor:

Dr. Perse McCrae

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Office hours: Monday & Wednesday 9:30-11:00 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.

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:

Critical article review: 150 pts

You will choose a primary scientific paper (NOT a review paper or brief communication) published in a peer reviewed journal on a topic within the field of equine exercise physiology (sign up required). Submission includes a two-page paper (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.**

Journal club leader: 150 pts

You will present your findings from the critical article review during class in a "journal club" type setting. You will have 30 minutes to summarize the journal article (based on your written assignment). You will then lead the class in discussion on that article. You are expected to know the ins and outs of the paper and come prepared with questions for the class. 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 April 28th.**

Points available:

Assignment	Points
Exams (125 points each X 3)	375 pts
Participation	120 pts
Critical article review	150 pts
Journal club leader	150 pts
Fitness test (150 points)	150 pts
Final Exam (Cumulative)	225 pts
Total	1170 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
January 14	Introduction & how to read scientific papers	1.1
January 16	Muscle physiology & energy demand	2.1
January 21	Muscle physiology journal club	
January 23	Training effects & fatigue	
January 28	Muscle glycogen metabolism	
January 30	Training effects & fatigue/ Muscle glycogen metabolism journal club	
February 4	Exam 1	
February 6	Skeletal physiology	2.2
February 11	Skeletal physiology II	
February 13	Skeletal physiology journal club	
February 18	Tendon & ligament physiology	2.3
February 20	Tendon & ligament physiology II	
February 25	Tendon & ligament journal club	
February 27	Joint physiology	2.4
March 3	Joint physiology journal club	
March 5	Biomechanics	2.5
March 10	Spring break: NO CLASS	
March 12	Spring break: NO CLASS	
March 17	Biomechanics journal club	
March 19	Exam 2	
March 24	Respiratory physiology	3.1, 3.2
March 26	Respiratory physiology II	
March 31	Respiratory physiology journal club	
April 2	Cardiac physiology	4.1
April 7	Cardiac physiology II	
April 9	Cardiac physiology journal club	
April 14	Exam 3	
April 16	Fitness testing	1.2
April 21	Flex day	
April 23	Review	
April 28	Review	
April 30	Dead day	
May 4	Final 9:30 am – 10:45 am	Cumulative final