

COURSE NAME; NUMBER; SEMESTER; MEETING DAYS, TIMES, AND PLACE.

Equine Exercise Physiology

11:067:402 and 16:340:508 Spring, 2019

Monday and Wednesday, 3:55-5:15 PM

Bartlett Hall Room 123

CONTACT INFORMATION:

Instructor(s): Kenneth Harrington McKeever, Ph.D., FACSM

Office Location: Bartlett Hall, Room 003

Phone: (848) 932-9390

Email: mckeever@sebs.rutgers.edu

Office Hours: By Arrangement

COURSE WEBSITE, RESOURCES AND MATERIALS:

- Required Text: Hodgson D, McKeever, K.H. and C. McGowan The Athletic Horse, Principles and Practice of Equine Sports Medicine, 2nd Edition, Elsevier, St. Louis, 2014.
- Handouts that the instructor will give in class or post on SAKAI.
- Notes taken by the student in class.
- Verbal lecture given by the instructor and real time discussion of concepts with class.

COURSE DESCRIPTION:

This course covers the current concepts regarding the physiological and environmental factors associated with exercise in the horse. The horse, the official state animal of New Jersey, plays an important role in the economy of New Jersey. The horse is a natural athlete willing to perform a wide variety of tasks including racing, driving, draft work, and pleasure riding. Research into the unique aspects of these athletic animals has led to the development of the field of equine exercise physiology. Equine exercise physiology is one of the fastest growing fields in the Animal Sciences and there is a need to provide basic knowledge to students and future leaders of the equine industry. This course will involve a survey and critical evaluation of the current concepts regarding the physiological and environmental factors associated with exercise in the horse. Both acute and chronic effects will be studied with emphasis placed on physiological mechanisms and limitations. The course is intended for upper division undergraduate and graduate students who have completed introductory courses in animal physiology or exercise physiology and horse management.

COURSE LEARNING GOALS:

Students will learn to participate in the exchange of new ideas and concepts related to the physiology of equine performance (PLG6).

Students will acquire skills that will enable them to use physiological models as a means of evaluating those factors which limit physical performance of the horse under specific physiological and environmental conditions (PLG3, PLG5).

Students will become acquainted with current concepts and research literature related to the topic of equine exercise physiology (PLG5).

ASSIGNMENTS/RESPONSIBILITIES, GRADING & ASSESSMENT:

Assessment:

Four 100 point exams

400 points

Term Paper (Due 4/23)

200 points

Quizzes, take home assignments, and participation	100 points
Abstract (508 Graduate Students)	100 points
Experiment Design (508 Students)	100 points
Final Exam	<u>100 points</u>
Total (402)	800 points
Total (508)	1000 points

C. Grading:

A= 90 to 100
B = 80 to 89
C = 70 to 79
D = 60 to 69
F = 0 to 59

D. Other Important assessment related information:

1. Students **must come prepared for class** by reading the material ahead of time.
2. Pop/take home quizzes, take home assignments, and class participation will be used to encourage reading the required material and will count towards 100 points.
3. **Exemption from final:** If one has a grade of B going into the final the student is exempt from the final exam and will receive the grade they have earned at the time of the last scheduled lecture.
4. Tests are will be essay or short answer.
5. Term paper:
 - Must be on a topic related to Exercise Physiology
 - More details to be provided in class
 - 15-20 pages minimum, at least 10-20 references
 - Traditional or alternative format
 - Must present the topic in a five-minute overview to the whole class using a Power Point presentation or other format.
6. Abstract: (508 only) Due Date TBD
7. Experimental design: (508 only) Due Date TBD

ACCOMODATIONS FOR STUDENTS WITH DISABILITIES

Please follow the procedures outlined at <https://ods.rutgers.edu/students/registration-form>. Full policies and procedures are at <https://ods.rutgers.edu/>

Enter additional text here if you wish

ABSENCE POLICY

Students are expected to attend class. If you expect to miss class then you must use the University absence reporting website <https://sims.rutgers.edu/ssra/> to indicate the date and reason for your absence. If you miss class without notification, then you must present a valid written excuse. Failure to attend or notify properly will result in a one letter grade for class for decrease for every two (2) absences without a written excuse).

COURSE SCHEDULE (subject to change):

<u>Lecture Outline</u>	<u>Date</u>	<u>Readings</u>
1. Class Orientation	1/22	
2. History of Equine Exercise Physiology	1/24	Chapter 1, 2
3. Physiological vs. Performance Testing, Definitions, Concepts,	1/29	Chapter 28, 29
4. Homeostasis and the Controlled System	1/31	Handouts
5. Energy Transformation and Metabolic Response to Acute Exercise	2/5	Chapter 3, Handouts
6. Muscle, Structure, Fiber Types, and Function.	2/7	Chapter 12
7. Exam I	2/12	
8. Pulmonary Structure Function and Gas Exchange and Transport	2/14	Chapter 9
9. Respiration: Control and Challenges (Hypoxia, EIPH, Etc.)	2/19	Chapter 9, Handouts
10. Treadmill Demonstration	2/21	
11. Cardiovascular Response to Exercise I (Central Mechanisms).	2/26	Chapter 11, Handouts
12. Cardiovascular Responses to Exercise II (Peripheral Mechanisms).	2/28	Chapter 11, Handouts
13. Exam II	3/5	
14. Body Fluid Balance and Exchange – Acute Responses	3/7	Chapter 5, 6, Handouts
15. Fluid and Electrolyte Control - Chronic Alterations	3/12	Chapter 5, 6, Handouts
16. Thermoregulation, fluid, and electrolytes I	3/14	Chapter 8
17. Renal Response to Exercise	3/26	Chapter 5, 6, Handouts
18. Exam III	3/28	
19. Acid Base Balance and Regulation during Exercise.	4/2	Chapter 5, 6, Handouts
20. Drug Policy and Testing	4/4	Handout
21. Ergogenics, Ergolytics, and Performance	4/9	Handout
22. Effects of Aging	4/11	Chapter 14
23. Exam IV	4/16	
24. Library Day Term Papers	4/18	
25. Student Presentations	4/23	
26. Student Presentations	4/25	
27. Comprehensive Final Exam	5/8	

FINAL EXAM/PAPER DATE AND TIME

Online Final exam Schedule: <http://finalexams.rutgers.edu/>

Comprehensive Final Exam: Exemption from final: If one has a grade of B going into the final the student is exempt from the final exam and will receive the grade they have earned at the time of the last scheduled lecture.

ACADEMIC INTEGRITY

My expectation is that students enrolled in my class will not lie, cheat, or tolerate those that do and therefore they must follow the university's policy on academic integrity.

The university's policy on Academic Integrity is available at <http://academicintegrity.rutgers.edu/academic-integrity-policy>. The principles of academic integrity require that a student:

- properly acknowledge and cite all use of the ideas, results, or words of others.
- properly acknowledge all contributors to a given piece of work.
- make sure that all work submitted as his or her own in a course or other academic activity is produced without the aid of impermissible materials or impermissible collaboration.
- obtain all data or results by ethical means and report them accurately without suppressing any results inconsistent with his or her interpretation or conclusions.
- treat all other students in an ethical manner, respecting their integrity and right to pursue their educational goals without interference. This requires that a student neither facilitate academic dishonesty by others nor obstruct their academic progress.
- uphold the canons of the ethical or professional code of the profession for which he or she is preparing.

Adherence to these principles is necessary in order to ensure that

- everyone is given proper credit for his or her ideas, words, results, and other scholarly accomplishments.
- all student work is fairly evaluated and no student has an inappropriate advantage over others.
- the academic and ethical development of all students is fostered.
- the reputation of the University for integrity in its teaching, research, and scholarship is maintained and enhanced.

Failure to uphold these principles of academic integrity threatens both the reputation of the University and the value of the degrees awarded to its students. Every member of the University community therefore bears a responsibility for ensuring that the highest standards of academic integrity are upheld.

STUDENT WELLNESS SERVICES

Just In Case Web App <http://codu.co/cee05e>

Access helpful mental health information and resources for yourself or a friend in a mental health crisis on your smartphone or tablet and easily contact CAPS or RUPD.

Counseling, ADAP & Psychiatric Services (CAPS)

(848) 932-7884 / 17 Senior Street, New Brunswick, NJ 08901 / www.rhscaps.rutgers.edu/

CAPS is a University mental health support service that includes counseling, alcohol and other drug assistance, and psychiatric services staffed by a team of professional within Rutgers Health services to support students' efforts to succeed at Rutgers University. CAPS offers a variety of services that include: individual therapy, group therapy and workshops, crisis intervention, referral to specialists in the community and consultation and collaboration with campus partners.

Violence Prevention & Victim Assistance (VPVA)

(848) 932-1181 / 3 Bartlett Street, New Brunswick, NJ 08901 / www.vpva.rutgers.edu/

The Office for Violence Prevention and Victim Assistance provides confidential crisis intervention, counseling and advocacy for victims of sexual and relationship violence and stalking to students, staff and faculty. To reach staff during office hours when the university is open or to reach an advocate after hours, call 848-932-1181.

Disability Services

(848) 445-6800 / Lucy Stone Hall, Suite A145, Livingston Campus, 54 Joyce Kilmer Avenue, Piscataway, NJ 08854 / <https://ods.rutgers.edu/>

Rutgers University welcomes students with disabilities into all of the University's educational programs. In order to receive consideration for reasonable accommodations, a student with a disability must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation: <https://ods.rutgers.edu/students/documentation-guidelines>. If the documentation supports your request for reasonable accommodations, your campus's disability services office will provide you with a Letter of Accommodations. Please share this letter with your instructors and discuss the accommodations with them as early in your courses as possible. To begin this process, please complete the Registration form on the ODS web site at: <https://ods.rutgers.edu/students/registration-form>.

Scarlet Listeners

(732) 247-5555 / <https://rutgers.campuslabs.com/engage/organization/scarletlisteners>

Free and confidential peer counseling and referral hotline, providing a comforting and supportive safe space.