

EQN*3250 - Equine Exercise Physiology

Fall 2025 Course Outline

Section: 01

Credits: 0.50

Land Acknowledgement: Guelph

The University of Guelph resides on the ancestral lands of the Attawandaron people and the treaty lands and territory of the Mississaugas of the Credit. We recognize the significance of the Dish with One Spoon Covenant to this land and offer respect to our Anishinaabe, Haudenosaunee and Métis neighbours. Today, this gathering place is home to many First Nations, Inuit, and Métis peoples and acknowledging them reminds us of our important connection to this land where we work and learn.

Calendar Description

This course considers the conversion of absorbed nutrients into metabolic fuels and the use of these substrates for work and heat production in horses. Practical application of theoretical knowledge develops an understanding for the basic physiological principles of muscle contraction and fatigue, thermoregulation, and energy utilization under differing exercise intensities, and how these principles can be applied to differential training strategies for equine athletes.

Co-requisite(s): ANSC*3080

Restriction(s): Registration in BBRM.EQM, BSC(Agr) and BSC.ABIO This is a Priority Access Course. Enrolment may be restricted to particular programs or specializations or semester levels during certain periods. See the departmental website for more information.

Department(s): Department of Animal Biosciences

Lecture Schedule

MonWedFri 10:30am-11:20am in ANNU*156 (9/4 to 12/12)

Lab / Seminar Sections

Day	Time	Location	Sections
Monday	11:30AM - 2:20PM	ANNU 110	01
Friday	2:30PM - 5:20PM	ANNU 110	02
Friday	11:30AM - 2:20PM	ANNU 110	03
Tuesday	8:30AM - 11:20AM	ANNU 110	04

Instructor Information

Wendy Pearson

Instructor

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Brodie Ross

Graduate Teaching Assistant

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Textbooks

Group	Title	Author	ISBN
Recommended	Equine Exercise Physiology: the science of exercise in the athletic horse	Kenneth Hinchcliff, Raymond Geor, Andris Kaneps	978-0-7020-2857-1

Learning Resources

Required Resources

TV Show: Episode of 7 Days Out

Season 1, Episode 4 "The Kentucky Derby" available on Netflix

Students are responsible for gaining access, which may involve purchasing access to Netflix if the student does not already subscribe to this service.

Campus Resources

If you are concerned about any aspect of your academic program: Make an appointment with a Program Counsellor (<https://www.uoguelph.ca/uaic/programcounsellors/>) in your degree program. If you are struggling to succeed academically: There are numerous academic resources offered by the Learning Commons (<https://www.lib.uoguelph.ca/using-library/spaces/learning-commons/>) including, Supported Learning Groups for a variety of courses, workshops related to time management, taking multiple choice exams, and general study skills.

Cost of Textbooks and Learning Resources

Textbook / Learning Resource	Required / Recommended	Cost
NetFlix Access	Required	\$30
Equine Exercise Physiology: The Science of Exercise in the Athletic Horse	Recommended (this book is <u>not</u> required)	\$163.23 (on Amazon)

Students are advised that prices are often determined by the publisher or bookstore and may be subject to change.

Course Learning Outcomes

1. Understand and explain basic principles of muscle contraction and relaxation within a context of energetic inputs and differential training regimens.
2. Define fundamental principles of energy demand, energy supply and energy utilization within muscle.
3. Articulate the integration of major physiological systems, including cardiovascular, respiratory, musculoskeletal and gastrointestinal systems within the context of the equine athlete.

Lecture Schedule

Week of	Topic	Activities	Due
9/5	Introduction to exercise physiology: course overview		
9/8	The ethics of equine sport	lecture; discussion	
9/15	Muscles: adaptive responses to exercise and training	lecture; discussion	
9/22	Bones, tendons and ligaments: adaptive responses to exercise and training	lecture; discussion	
9/29	Articulating joints and cartilage	lecture; discussion	
10/6	Respiratory physiology in exercise and training	lecture; discussion	
10/13		Thanksgiving Holiday	

10/15	Biomechanics of locomotion	lecture; discussion
10/20	Cardiovascular function and oxygen transport: adaptations to exercise and training	lecture; discussion
10/27	Gastrointestinal responses to exercise and training	lecture; discussion
11/3	Hydration and thermoregulation	lecture; discussion
11/10	Metabolic and endocrine responses to exercise and training	lecture; discussion
11/17	The role of inflammation in the training effect	lecture; discussion
11/24	Exercise testing in the field	lecture; discussion
12/1	Recent advances in equine exercise physiology	lecture; discussion

Lab / Seminar Schedule

Week of Sep 8

NO LABS THIS WEEK

Week of Sep 15

Journal Club

Week of Sep 22

Journal Club

Week of Sep 29

Group Jeopardy 1

Week of Oct 6

Journal Club

Week of Oct 13

NO LABS THIS WEEK

Week of Oct 20

Journal Club

Week of Oct 27

Group Jeopardy 2

Week of Nov 3

Journal Club

Week of Nov 10

Journal Club

Week of Nov 17

Journal Club

Week of Nov 24

Group Jeopardy 3

Week of Dec 1

NO LABS THIS WEEK

Assessment Breakdown

Attendance in labs is mandatory. Students will lose 2% of their journal club presentation / discussion grade for each missed lab, unless absence has been discussed with and approved by the instructor prior to the missed lab.

Description	Weighting (%)	Due Date
Jeopardy questions / answers	15%	every Friday, 11:59pm via dropbox
Group Jeopardy 1	15%	week of Sep 29 in lab
Group Jeopardy 2	15%	week of Oct 27 in lab
Group Jeopardy 3	15%	week of Nov 24 in lab
journal club presentation / discussion	20%	TBD
Industry Interview assignment	20%	Nov 28, 11:59pm via dropbox

Assessment Details

Assignment

Jeopardy Questions and Answers

15%

At the end of each week of lectures, students will submit to dropbox 2 original questions and answers which provoke learning and understanding of the lecture material from that week.

- 1 factual / recall question + answer (question: 1 mark; answer: 2 marks; references: 2 marks)
- 1 integration / deeper thought question + answer (question 2 marks; answer: 4 marks; references: 3 marks)

At least **2 references must be provided for the factual/recall answer** and at least **3 references must be provided for the integration/deeper thought answer**. For both questions, at least 1 reference from the lecture material and at least 1 reference from peer-reviewed scientific research.

Course Learning Outcomes Assessed: 1, 2, 3

Lab Activities

Group Jeopardy

45%

During lab, students will be randomly assigned to one of 6 groups (approximately 5 students in each group). Each group will be given a bell, and they will select a different spokesperson and scribe for the group for each round. Goal is to correctly answer as many questions as possible.

Points will be allocated as follows:

Bucket 1 Questions (Recall)

- correct answer = 2 points (round 1), 3 points (round 2) or 4 points (round 3), 5 points (round 4), 6 points (round 5)

Bucket 2 Questions (Integration)

- correct answer = 4 points (round 1), 5 points (round 2) or 6 points (round 3)
- incorrect answer deduct same number of points

Round 1 - Instructor will randomly select 10 questions from Bucket 1 (Recall questions). First group to ring the bell will answer the question. If correct, move on to Round 2. If incorrect, the group which answered incorrectly will select 1 question from Bucket 2, and pose it to the remaining groups. First group to ring bell gets to answer; if the answer is correct, that group gets 2 bonus points; if the answer is incorrect, the 'asking' group gets the 2 bonus points. Then move on to Round 2.

Round 2, same as Round 1, except instructor selects 4 questions from Bucket 1 and 6 questions from Bucket 2. Round 3, instructor selects 2 questions from Bucket 1 and 8 questions from Bucket 2. Round 4, instructors selects 10 questions from Bucket 2.

Final round: Groups can bet up to all their points. After bets are placed, each group will select 4 questions from either Bucket. Groups have 5 minutes to formulate their answers to the four questions. Each group will present their questions and answers. Instructor will determine if their answers are correct. ALL answers must be COMPLETELY correct to win their bet; any incorrect or partially-incorrect answer they lose their bet.

Winning group is the group with the most points after final round. Prizes will be given!

Each group must create a written document of all questions and correct answers, to be handed in at the end of the lab session (one document per group). Please make sure your handwriting is LEGIBLE and your group member names and IDs are on the page.

Grading:

1. show up (5 marks)
2. participate actively in the process (15 marks)
3. hand in list of all questions asked, and correct answers (20 marks)

Course Learning Outcomes Assessed: 1, 2, 3

Discussion

Journal Club Presentation / Discussion

20%

Sign-up sheets for Journal Club presentations will be posted on Courselink during the first week of classes.

Students will sign up for specific weeks to present their selected research paper and lead the lab group in discussion. **A maximum of 3 powerpoint slides is permitted for the presentation.** Use whatever visuals you think will enhance your explanation of **Why** the study was conducted, **How** the study was conducted, and **What** the results mean within the context of the exercising horse. Your presentation should be maximum of 15 minutes, and you should come prepared with enough questions about your paper (and other relevant literature) to lead the rest of the lab in discussion. Each presentation/discussion must be a total of 30 minutes.

Grades:

- quality of powerpoint slides (10 marks)
- created engagement within the lab during discussion (10 marks)
- demonstrated knowledge about the paper and other relevant literature (20 marks)

Course Learning Outcomes Assessed: 1, 2, 3

Project

Industry Interview

20%

Sign-up sheet for this assignment on will be posted on courselink during the first week of classes. Students will reach out to local farms in the 2 disciplines they selected, and arrange to meet with the owner/trainer for an interview and farm tour. Students will conduct industry interviews in groups of min 2, max 4 people, but each student must prepare and hand in their own written report to dropbox.

GOAL #1: compare and contrast 2 equine sport disciplines with respect to:

- background of trainers / owners (education, experience with horses etc)
- nutrition and nutritional management
- feed supplements
- daily exercise / turnout
- training schedules and strategies for the horse
- others?

GOAL #2: connect the activities you learned from your interviewees to content you have learned in this course (lecture material, literature searches, lab activities).

Identify areas where those folks you interviewed put into practice the science you have learned, and how they and/or their horses might benefit from that. Discuss some examples of where improving the application of science might improve their horses' health and/or performance.

Grades:

- questions for interviews (10 marks - Due to Dropbox by September 29, 11:59pm)
- clearly introduce each discipline in general; compare and contrast them (10 marks)
- clearly describe the 2 facilities you visited, use photos and/or drawings as well as text (10 marks)
- clearly compare and contrast each facility with respect to those outcomes listed in GOAL #1, as well as others that may be relevant to your disciplines and/or facilities (10 marks)
- discuss areas at each facility which already put into practice the theory you have learned, as well as areas where greater implementation of equine physiology science might improve horse health and/or performance (20 marks)

Course Learning Outcomes Assessed: 1, 2, 3

Last Day to Drop Course

The final day to drop Fall 2025 courses without academic penalty is the last day of classes: November 28

After this date, a mark will be recorded, whether course work is completed or not (a zero is assigned for missed tests/assignments). This mark will show on the student's transcript and will be calculated into their average.

Course Grading Policies

Submission of Assignments

Late assignments will receive a 10% per day reduction for a maximum of 3 days past the due date. After 3 days, the assignment will not be accepted and will be given a grade of 0.

University of Guelph Grading Rubric

Students are encouraged to review the University of Guelph Grading Procedures outlined below to understand assessments in this course. This and additional information can be found on the university website (<https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/grades/>).

80 - 100 (A) Excellent. An outstanding performance in which the student demonstrates a superior grasp of the subject matter, and an ability to go beyond the given material in a critical and constructive manner. The student demonstrates a high degree of creative and/or logical thinking, a superior ability to organize, to analyze, and to integrate ideas, and a thorough familiarity with the appropriate literature and techniques.

70 - 79 (B) Good. A more than adequate performance in which the student demonstrates a thorough grasp of the subject matter, and an ability to organize and examine the material in a critical and constructive manner. The student demonstrates a good understanding of the relevant issues and a familiarity with the appropriate literature and techniques.

60 - 69 (C) Acceptable. An adequate performance in which the student demonstrates a generally adequate grasp of the subject matter and a moderate ability to examine the material in a critical and constructive manner. The student displays an adequate understanding of the relevant issues, and a general familiarity with the appropriate literature and techniques.

50 - 59 (D) Minimally Acceptable. A barely adequate performance in which the student demonstrates a familiarity with the subject matter, but whose attempts to examine the material in a critical and constructive manner are only partially successful. The student displays some understanding of the relevant issues, and some familiarity with the appropriate literature and techniques.

0 - 49 (F) Fail. An inadequate performance.

Use of Artificial Intelligence (AI) in Course Assignments

Policy of the University of Guelph on use of AI can be found here <https://news.uoguelph.ca/2023/03/university-of-guelph-statement-on-artificial-intelligence-systems-chatgpt-academic-integrity/>.

Please note in particular: **"Unauthorized student use of AI systems undermines student learning, the achievement of learning outcomes and violates the University's academic misconduct policies."**

All submitted work is expected to be the work of each individual student; any use of AI (eg. to correct grammar) must be declared, and the student's original version (prior to AI-corrections) must be submitted in addition to the AI-corrected version.

Standard Statements for Undergraduate Courses

Academic Integrity

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community – faculty, staff, and students – to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

The Academic Misconduct Policy (<https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/academic-misconduct/>) is outlined in the Undergraduate Calendar.

Accessibility

The University promotes the full participation of students who experience disabilities in their academic programs. To that end, the provision of academic accommodation is a shared responsibility between the University and the student.

When accommodations are needed, the student is required to first register with Student Accessibility Services (SAS). Documentation to substantiate the existence of a disability is required; however, interim accommodations may be possible while that process is underway.

Accommodations are available for both permanent and temporary disabilities. It should be noted that common illnesses such as a cold or the flu do not constitute a disability. Use of the SAS Exam Centre requires students to make a booking at least 10 days in advance, and no later than the first business day in November, March or July as appropriate for the semester. Similarly, new or changed accommodations for online quizzes, tests and exams must be approved at least a week ahead of time. For students at the Guelph campus, information can be found on the SAS website. (<https://www.uoguelph.ca/sas/>)

Accommodation of Religious Obligations

If you are unable to meet an in-course requirement due to religious obligations, please email the course instructor within two weeks of the start of the semester to make alternate arrangements.

See the Academic calendar for information on regulations and procedures for Academic Accommodations of Religious Obligations (<https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/academic-accommodation-religious-obligations/>).

Copies of Out-of-class Assignments

Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

Drop Date

Students will have until the last day of classes to drop courses without academic penalty. The deadline to drop two-semester courses will be the last day of classes in the second semester. This applies to all undergraduate students except for Doctor of Veterinary Medicine and Associate Diploma in Veterinary Technology (conventional and alternative delivery) students. The regulations and procedures for course registration are available in the Undergraduate Calendar - Dropping Courses (<https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/dropping-courses/>).

Email Communication

As per university regulations, all students are required to check their <uoguelph.ca> e-mail account regularly: e-mail is the official route of communication between the University and its students.

Health and Wellbeing

The University of Guelph provides a wide range of health and wellbeing services at the Vaccarino Centre for Student Wellness (<https://wellness.uoguelph.ca/>). If you are concerned about your mental health and not sure where to start, connect with a Student Wellness Navigator (<https://wellness.uoguelph.ca/navigators/>) who can help develop a plan to manage and support your mental health or check out our mental wellbeing resources (<https://wellness.uoguelph.ca/shine-this-year/>). The Student Wellness team are here to help and welcome the opportunity to connect with you.

Illness

Medical notes will not normally be required for singular instances of academic consideration, although students may be required to provide supporting documentation for multiple missed assessments or when involving a large part of a course (e.g., final exam or major assignment).

Recording of Materials

Presentations that are made in relation to course work—including lectures—cannot be recorded or copied without the permission of the presenter, whether the instructor, a student, or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

Resources

The Academic Calendars (<http://www.uoguelph.ca/registrar/calendars/?index>) are the source of information about the University of Guelph's procedures, policies and regulations which apply to undergraduate, graduate and diploma programs.

When You Cannot Meet a Course Requirement

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons please advise the course instructor (or designated person, such as a teaching assistant) in writing, with your name, id#, and e-mail contact. See the Undergraduate Calendar for information

on regulations and procedures for Academic Consideration. (<https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/academic-consideration-appeals-petitions/>)