



# EQN\*3250 Equine Exercise Physiology

Fall 2020

Section(s): C01

Department of Animal Biosciences

Credit Weight: 0.50

Version 1.00 - September 11, 2020

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## 1 Course Details

### 1.1 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.

**Pre-Requisites:**

ANSC\*3080 or (EQN\*2040, EQN\*2050)

**Equates:**

EQN\*3050, EQN\*3150

**Restrictions:**

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.

### 1.2 Course Description

Students will develop an understanding for the basic physiological principles of muscle contraction and fatigue, thermoregulation, energy utilization under differing exercise intensities, and how these principles can be applied to differential training strategies for equine athletes.

### 1.3 Timetable

Timetable is subject to change. Please see WebAdvisor for the latest information.

### 1.4 Final Exam

No final exam.

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## 2 Instructional Support

### 2.1 Instructional Support Team

<b>Instructor:</b>	Wendy Pearson
<b>Email:</b>	wpearson@uoguelph.ca
<b>Telephone:</b>	+1-519-824-4120 x53652
<b>Office:</b>	ANNU 227
<b>Office Hours:</b>	Office hours by appointment

### 2.2 Teaching Assistants

<b>Teaching Assistant:</b>	Anna Garland
<b>Email:</b>	garlanda@uoguelph.ca

### 2.3 Communicating with your Instructor

During the course, your instructor will interact with you on various course matters on the course website using the following ways of communication:

- **Announcements:** The instructor will use **Announcements** on the Course Home page to provide you with course reminders and updates. Please check this section frequently for course updates from your instructor.
- **Discussion:** Use this discussion forum to pose course-related questions to your classmates, TA and instructor. If you encounter difficulties, your TA and instructor is here to help you. Please post general course-related questions to the discussion forum so that all students have an opportunity to review the response. To access this discussion forum, select **Discussions** from the **Tools** dropdown menu.
- **Email:** If you have a conflict that prevents you from completing course requirements, or have a question concerning a personal matter, you can send your instructor a private message by email. The instructor will attempt to respond to your email within 24 hours.
- **Video Call:** If you have a complex question you would like to discuss with your TA or instructor, you may book a video meeting on Teams. Video meetings depend on the availability and are booked on a first come first served basis.

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## 3 Learning Resources

### 3.1 Required Resources

#### Required Texts: (Textbook)

Equine Exercise Physiology: The Science of Exercise in the Athletic Horse. Author(s):

Kenneth W. Hinchcliff, BVSc(Hons) MS PhD Dip ACVIM, Raymond J. Geor, BVSc MVSc PhD Dipl ACVIM, and Andris J. Kaneps DVM PhD Dip ACVS. ISBN: 978-0-7020-2857-1. PDF version available vis University library.

## 3.2 Recommended Resources

### Reommeded Texts: (Textbook)

1. Anatomy and Physiology of Farm Animals (Frandsen) (e-version available through UofG Library)

## 3.3 Field Trips:

None

## 3.3 Additional Costs:

None

## 3.3 Course Technologies and Technical Support

### System and Software Requirements

This course will use a variety of technologies including;

- CourseLink (main classroom)
- Virtual Classroom
- Teams (via Office 365)

To help ensure you have the best learning experience possible, please review the list of system and software requirements (<https://opened.uoguelph.ca/student-resources/system-and-software-requirements>)

### CourseLink System Requirements

You are responsible for ensuring that your computer system meets the necessary system requirements. Use the browser check tool to ensure your browser settings are compatible and up to date. (Results will be displayed in a new browser window).  
<http://spaces.uoguelph.ca/ed/system-requirements/>

<https://courselink.uoguelph.ca/d2l/systemCheck>

## **Course Technologies**

### **CourseLink**

This course is being offered using CourseLink (powered by D2L's Brightspace), the University of Guelph's online learning management system (LMS). By using this service, you agree to comply with the University of Guelph's Access and Privacy Guidelines. Please visit the D2L website to review the Brightspace privacy statement and Brightspace Learning Environment web accessibility standards. <http://www.uoguelph.ca/web/privacy/>  
<https://www.d2l.com/legal/privacy/> <https://www.d2l.com/accessibility/standards/>

### **Courselink Technical Support**

If you need any assistance with the software tools or the CourseLink website, contact CourseLink Support. ([courselink@uoguelph.ca](mailto:courselink@uoguelph.ca); Tel: 519-824-4120 ext. 56939 Toll-Free (CAN/USA): 1-866-275-1478

#### Support Hours (Eastern Time):

Monday thru Friday: 8:30 am–8:30 pm

Saturday: 10:00 am–4:00 pm

Sunday: 12:00 pm–6:00 pm

### **Virtual Classroom (via CourseLink)**

All lectures will be conducted using Virtual Classroom. The link to virtual classroom can be found along the navigation bar on our class CourseLink page.

### **Teams (via Office 365)**

Teams will be used for 'study group' sessions with the TA and students prior to and following all quizzes. Students will be notified by the TA when study group sessions are being held; students wishing to participate will send an email to the TA prior to the Study Group Session and the student will be sent a link to the Teams meeting.

Office 365 Teams is a collaboration service that provides shared conversation spaces to help teams coordinate and communicate information. This course will use Teams for one on one meetings with your Instructor. It is recommended that you use the desktop version of Teams. As a student you are responsible for learning how to use Teams and it's features.

For Teams Support visit the CCS website for more information.  
<https://www.uoguelph.ca/ccs/services/office365/teams>

### 3.3 Library Access

As a student, you have access to the University of Guelph's library collection, including both physical and electronic materials. For information on checking out or couriering physical library items, accessing electronic journals and returning items to the library, visit the library's website.

If you are studying off campus and would like to access the library's electronic resources, use the Off Campus Login and login using your Single Sign On credentials or using your last name and library barcode. <https://www.lib.uoguelph.ca/> <https://www.lib.uoguelph.ca/campus-login>

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## 4 Learning Outcomes

By the end of this course, you should be able to:

### 4.1 Course Learning Outcomes

By the end of this course, you should be able to:

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.
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## 5 Teaching and Learning Activities

### 5.1 Lecture

#### Week 1

**Topics:** Introduction to exercise physiology

**Week 2**

**Topics:** Muscle physiology

**Week 3**

**Topics:** Bones tendons and ligaments: adaptive responses to exercise and training

**Week 4**

**Topics:** Articulating joints and cartilage

**Week 5**

**Topics:** Biomechanics and appendicular skeleton and hooves

**Week 6**

**Topics:** Respiratory physiology in exercise and training

**Week 7**

**Topics:** Cardiovascular function and oxygen transport

**Week 8**

**Topics:** Gastrointestinal responses to exercise and training: ergogenic aids

**Week 9**

**Topics:** Hydration and thermoregulation

**Week 10**

**Topics:** Metabolic and endocrine responses to exercise and training

**week 11**

**Topics:** Acid base physiology

**Week 12**

**Topics:** Exercise testing in the field

## 5.2 Lab

**Topics:** None

## 5.3 NOTE on course schedule

Students are advised that the course schedule as listed in this outline may be subject to change. If changes are required, students will be notified in advance and every effort will be made to accommodate individual student needs.

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# 6 Assessments

## 6.1 Marking Schemes & Distributions

Name	Scheme A (%)
Quiz #1	20
Quiz #2	20
Quiz #3	20
Literature Review Assignment	20
Quiz #4	20
Total	100

## 6.2 Assessment Details

### Quiz #1 (20%)

**Date:** Week 3, Online via CourseLink

**Learning Outcome:** 1, 2

### Quiz #2 (20%)

**Date:** Week 6, Online via CourseLink

**Learning Outcome:** 1, 2, 3

### Quiz #3 (20%)

**Date:** Week 9, Online via CourseLink

**Learning Outcome:** 1, 2, 3

### Literature Review Assignment (20%)

**Date:** Week 10, Submit via dropbox on Courselink  
due via Courselink Dropbox on Friday Nov 5, 11:59pm

### Quiz #4 (20%)

**Date:** Week 12, Online via CourseLink

**Learning Outcome:** 1, 2, 3

### 6.3 University of Guelph Grading Rubric

The following is the grading rubric which the University of Guelph applies to student assessment:

Percentage Grade	Description
90-100 (A+)	<b>Outstanding.</b> The student demonstrated a mastery of the course material at a level of performance exceeding that of most scholarship students and warranting consideration for a graduation award
80-89 (A- to A)	<b>Very Good to Excellent.</b> The student demonstrated a very good understanding of the material at a level of performance warranting scholarship consideration.
70-79 (B)	<b>Acceptable to Good.</b> The student demonstrated an adequate to good understanding of the course material at a level of performance sufficient to complete the program of study.
65-69 (C)	<b>Minimally Acceptable.</b> The student demonstrated an understanding of the material sufficient to pass the course but at a level of performance lower than expected from continuing graduate students.
0-64 (F)	An inadequate performance.

### 6.4 Literature Review Assignment

Students will prepare a review of the pertinent scientific literature pertaining to a topic related to equine exercise physiology. Topics must be submitted to and approved by your TA no later than Friday September 18, 11:59pm. **Students not having an approved topic by the due date will receive a deduction of 5% from their final paper grade.**

The paper is worth 20% of your final grade and is due via Courselink Dropbox on Friday Nov 5, 11:59pm. **Late assignments will be deducted 20% per day for a maximum of 3 days after which time the student will receive a grade of 0 for the assignment.**

Paper must describe the state of the art pertaining to your topic. Use the most recent and relevant literature available. Students are expected to integrate information from individual studies, reconcile potentially conflicting research results, and identify knowledge gaps. Literature reviews must include a minimum of 12 primary peer reviewed scientific research papers. Scientific review papers and/or scientific text books are acceptable to cite in your paper, but cannot be used towards your 12-paper count. Non-peer reviewed sources are to be

avoided, including (but not limited to) non-peer-reviewed websites, blogs, or personal communications/experience.

Your paper must be a maximum of 5-6000 words (if using 12pt font, Times New Roman, single spaced, this is approximately 10-12 pages), not including references or title page. **Do not exceed maximum length. Words in addition to the maximum count will not be considered during grading.** Use proper referencing, using the Equine Veterinary Journal style (section 4.8 in the instructions found here <https://onlinelibrary.wiley.com/page/journal/20423306/homepage/ForAuthors.html>)

**Subheadings MUST be used** to organize your paper, and format should follow that of a published scientific review paper. An example review paper can be found here as a format guide (<https://onlinelibrary.wiley.com/doi/epdf/10.1111/jpn.13384>)

### **Resources that may be helpful in your literature search:**

UNIVERSITY OF GUELPH LIBRARY ONLINE JOURNALS  
<http://www.lib.uoguelph.ca/find/find-type-resource/journal-articles>

PUBMED <http://www.ncbi.nlm.nih.gov/pubmed>

### **Assessment:**

*Title and Abstract (20/100).* Briefly states the purpose, why this area of research is important, and the key points that the review makes.

*Introduction (20/100).* The introduction should get the reader's attention, introduce the main idea of the report, and end with a strong thesis statement.

*Body (50/100).*

Use Headings / Subheadings to help organize the flow of topics and information

Paragraphs should begin with a clear topic sentence, which contains an important idea about your topic. Supporting, detailed sentences should follow the topic sentence. The paragraph should end with a strong summary statement.

Paragraphs should be arranged in a logical order.

Each section should end with a brief summary statement(s)

Points to consider:

- o Are the topics stated in the thesis statement appropriately addressed in the report?
- o Did the student stay focused on the main topic and sub topics?
- o Are details used to explain and clarify the main issue/topic?
- o Is the information, presented by the student, appropriate?
- o Did the student adequately integrate research results and reconcile conflicting data?
- o Did the students provide sufficient research data to reach a clear conclusion regarding the topic?
- o Did the student access and review the most relevant and up-to-date research pertaining to the topic?
- o Did the student identify knowledge gaps?
- o Spelling checked? Punctuation checked? Capitalization checked? Grammar and usage

checked?

*Conclusions (5/100)*. The conclusion repeats the main part of the report and ends with a final, interesting sentence. The thesis statement is often restated here. This is the place for YOUR OPINION. Based on your review of the literature, what do you conclude about your topic?

Conclusions should not include references.

*References (5/100)*. Format references using the style of the Equine Veterinary Journal

## 6.5 Dropbox submission for Literature Review

Assignments should be submitted electronically via the online **Dropbox** tool. When submitting your assignments using the **Dropbox** tool, do not leave the page until your assignment has successfully uploaded. To verify that your submission was complete, you can view the submission history immediately after the upload to see which files uploaded successfully. The system will also email you a receipt. Save this email receipt as proof of submission.

Be sure to keep a back-up copy of all of your assignments in the event that they are lost in transition. In order to avoid any last-minute computer problems, your instructor strongly recommend you save your assignments to a cloud-based file storage (e.g., OneDrive), or send to your email account, so that should something happen to your computer, the assignment could still be submitted on time or re-submitted.

If you choose to submit assignments to the **Dropbox** tool late, the full allocated mark will be reduced by 20% per day after the deadline for the submission of the assignment to a limit of 3 days at which time access to the **Dropbox** folder will be closed.

Extensions will be considered for medical reasons or other extenuating circumstances. If you require an extension, discuss this with the instructor as soon as possible and well before the due date. Barring exceptional circumstances, extensions will not be granted once the due date has passed. These rules are not designed to be arbitrary, nor are they inflexible. They are designed to keep you organized, to ensure that all students have the same amount of time to work on assignments, and to help to return marked materials to you in the shortest possible time.

It is your responsibility to submit your assignments on time as specified on the Schedule. Be sure to check the technical requirements and make sure you have the proper computer, that you have a supported browser, and that you have reliable Internet access. Remember that

**technical difficulty is not an excuse not to turn in your assignment on time.** Don't wait until the last minute as you may get behind in your work.

If, for some reason, you have a technical difficulty when submitting your assignment electronically, please contact your instructor or CourseLink Support.  
<http://spaces.uoguelph.ca/ed/contact-us/>

## 6.6 Grades and Feedback

Unofficial assessment marks will be available in the **Grades** tool of the course website.

Your TA and/or instructor will attempt to have grades posted online within 2 weeks of the submission deadline, if the assignment was submitted on time. Once your assignments are marked you can view your grades on the course website by selecting **Grades** from the **Tools** dropdown menu on the navbar. Your course will remain open to you for seven days following the last day of the final exam period.

University of Guelph students can access their final grade by logging into WebAdvisor (using your U of G central ID).

<https://webadvisor.uoguelph.ca>

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# 7 Course Statements

## 7.1 Grading Policies

Course policy on late assignments: penalty of 20% per day for maximum of three days after which no assignments will be accepted without approved academic consideration.

Alternate assessments will be offered only to students with documented medical, psychological, or compassionate reasons **for missing a scheduled assessment**. An Academic Consideration form must be submitted to the instructor. Go to <https://www.upguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac-ac.shtml> for information on regulations and procedures related to Academic Consideration. Late assignments, if applicable, will be penalized at 10% per day late, commencing the day following the published due date, and will only be accepted for a maximum of 3 days

following the published due date.

## **7.2 Course Policy regarding use of electronic devices and recording of Lectures**

The general use of small, personal electronic devices (e.g. cell phones, iPods) during class is disruptive and disrespectful. As a result, their use in the classroom for reasons other than instructor-led learning is prohibited.

The use of a laptop for the purpose of taking notes/learning in the classroom is a *privilege*. Any student abusing this concession by using a laptop in class for other purposes will have the privilege revoked.

## **7.3 Etiquette Expectations**

Remote learning course websites may include both synchronous and asynchronous interactions and have the same protections, expectations, guidelines, and regulations used in face-to-face settings. Here you will find a list of guidelines and expectations for the remote learning environment.

To get the most out of your remote delivery class, consider the following:

1. Be respectful of your instructors, TAs and peers in the online synchronous and asynchronous class environment.
2. Avoid the use of offensive language and inappropriate jokes to keep the environment positive for all.
3. Refrain from making inflammatory, disrespectful, or discriminatory comments about your instructors, TA or peers within the remote learning environment, external sites, or social media.
4. Take advantage of the mute button in synchronous classes and only unmute yourself when necessary.
5. During synchronous lectures, keep discussions in the chat and related to the course material.

6. Let your professor know if they didn't explain something fully by leaving a comment about it in the chat. If you are confused, chances are so are other students in the class.
7. Indicate if the professor is going too fast or too slow by modifying your status or using the reaction tools often available in the tools your instructors use.
8. Be mindful of both yours and other's personal information; if you are recording materials presented synchronously, ensure all participants are aware.
9. Posts to the discussion board should be on-topic and not promoting profit-driven products and services.
10. Proofread your work before submitting it; this includes any discussion board posts and assignments to Dropbox.
11. Use citations or references in your work to indicate when you are referencing another person's work.
12. Submit work that is your own and do not copy from fellow students or purchase written papers online.
13. Be honest about the completion of quizzes and assessments. If you run into technical difficulties on a quiz or when submitting an assignment, reach out to CourseLink Support for assistance.
14. If you disagree with a grade you received, find time to have a conversation with your instructor or TA about it. Do not incite other students to argue with the instructor over assessments or grades related expectations.
15. Use clear and concise language.
16. Course materials provided within CourseLink should not be posted elsewhere without the permission of the instructor.
17. Do not post or sell course materials and notes to course notes websites.
18. Do not share your username and password with another student

Behaviours that are not tolerated, but not limited to, include:

- Threatening or harassing a student or instructor online.
- Having someone else complete your quiz or other assessments, or you complete a quiz or other assessment for (or with) another student.
- Attempting to compromise the security or functionality of the CourseLink learning environment.

It is expected that you behave honourably, appropriately, and with academic integrity (regardless of the course being held remotely).

## 8 University Statements

### 8.1 Email Communication

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

### 8.2 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. The grounds for Academic Consideration are detailed in the Undergraduate and Graduate Calendars.

Undergraduate Calendar - Academic Consideration and Appeals

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml>

Graduate Calendar - Grounds for Academic Consideration

<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/index.shtml>

Associate Diploma Calendar - Academic Consideration, Appeals and Petitions

<https://www.uoguelph.ca/registrar/calendars/diploma/current/index.shtml>

### 8.3 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 students (undergraduate, graduate and diploma) 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 their respective Academic Calendars.

Undergraduate Calendar - Dropping Courses

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-drop.shtml>

Graduate Calendar - Registration Changes

<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/genreg-reg-regchg.shtml>

Associate Diploma Calendar - Dropping Courses

<https://www.uoguelph.ca/registrar/calendars/diploma/current/c08/c08-drop.shtml>

### 8.4 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.

## 8.5 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 book their exams at least 7 days in advance and not later than the 40th Class Day.

For Guelph students, information can be found on the SAS website  
<https://www.uoguelph.ca/sas>

For Ridgetown students, information can be found on the Ridgetown SAS website  
<https://www.ridgetownc.com/services/accessibilityservices.cfm>

## 8.6 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 encourages academic integrity. 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.

Undergraduate Calendar - Academic Misconduct  
<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml>

Graduate Calendar - Academic Misconduct  
<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/index.shtml>

## 8.7 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.

## **8.8 Resources**

The Academic Calendars are the source of information about the University of Guelph's procedures, policies, and regulations that apply to undergraduate, graduate, and diploma programs.

Academic Calendars

<https://www.uoguelph.ca/academics/calendars>

## **8.9 Disclaimer**

Please note that the ongoing COVID-19 pandemic may necessitate a revision of the format of course offerings and academic schedules. Any such changes will be announced via CourseLink and/or class email. All University-wide decisions will be posted on the COVID-19 website (<https://news.uoguelph.ca/2019-novel-coronavirus-information/>) and circulated by email.

## **8.10 Illness**

The University will not normally require verification of illness (doctor's notes) for fall 2020 or winter 2021 semester courses. However, requests for Academic Consideration may still require medical documentation as appropriate.

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