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

Lecture: Mon, Wed, Fri, 8:30-9:20am VIRTUAL VIA TEAMS

Lab Section 1: Thur 8:30-11:20am ANNU 110

Lab Section 2: Mon 11:30am-2:20pm ANNU 110
Lab Section 3: Tue 8:30-11:20am ANNU 110
Lab Section 4: Tue 11:30-2:20pm ANNU 110

COVID-19 Disclaimer: please be aware that the information on course delivery, accessibility and examinations presented in this outline were developed based on current University guidelines. However, due to the continuously evolving situation and resulting changes in public health recommendations, the format and delivery of this course may be revised with limited notice.

1.4 Final Exam
No final exam.

2 Instructional Support

2.1 Instructional Support Team

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

2.2 Teaching Assistants

Teaching Assistant (GTA): Anna Garland
Email: garlanda@uoguelph.ca

Teaching Assistant (GTA): Amir Sarrafchi
Email: asarrafc@uoguelph.ca

Teaching Assistant (GTA): (T.) Connor McCorkell
Email: tmccorke@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 TAs and instructor are 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.

### 3 Learning Resources

#### 3.1 Required Resources

**TV Show Episode of 7 Days Out (Other)**  
Season 1, Episode 4 *“The Kentucky Derby”* available on Netflix

**MOVIE - 50 to 1 (Other)**  
Available for rent ($4.99) or purchase ($17.99)  
at https://www.primevideo.com/detail/amzn1.dv.gti.76b56962-e328-8a5b-209d-bddc1555747c

#### 3.2 Recommended Resources

**Recommended 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 via University library.

Anatomy and Physiology of Farm Animals (Frandson) (e-version available through UofG Library)
3.3 Field Trips:
Please see lab schedule

3.3 Additional Costs:
'7 days out' is available via Netflix subscription. Student is responsible for gaining access, which may involve purchasing access to Netflix if the student does not already subscribe to this service.

3.3 Course Technologies and Technical Support

System and Software Requirements

This course will use a variety of technologies including;

- CourseLink
- Microsoft Teams

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/

Courseslink Technical Support

If you need any assistance with the software tools or the CourseLink website, contact CourseLink Support. (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
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

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.

5 Teaching and Learning Activities

5.1 Lecture

Week of September 13

Topics:

Introduction to exercise physiology
Is there a conflict between the human and humane sides of equine sport?

Week September 20

Topics: Muscle physiology

Week of September 27

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

Week of October 4

Topics: Articulating joints and cartilage

Week of October 11

Topics: Biomechanics and hooves

Week of October 18

Topics: Respiratory physiology in exercise and training

Week of October 25

Topics: Cardiovascular function and oxygen transport

Week of November 1

Topics: Gastrointestinal responses to exercise and training

Week of November 8

Topics: Hydration and thermoregulation

Week of November 15

Topics: Metabolic and endocrine responses to exercise and training

Week of November 22
Physiological adaptation to exercise: the role of inflammation in the training effect

Week of November 29

Topics: Exercise testing in the field

5.2 Lab

Week of September 13

Topics: The human and humane side of equine sport

References: 7 days out - Season 1 Episode 4 "The Kentucky Derby"

Students do not need to come to campus for this lab.

Is there a conflict between the human and humane side of equine sport?
Watch video “7 Days Out – Season 1, Episode 4 ‘The Kentucky Derby”’
See ‘Assessment’ in this course outline for details on this lab

Week of September 20

Topics: Field Trip - Woodbine racetrack backstretch and frontside tour. Students meet at the North Loading Dock of AnNu

Students will visit the Equine Sports Medicine Centre for an equine treadmill demo. Before and after, measure heart rate, rectal temperature, BIA.

Week of September 27

Topics: Field Trip - Standardbred Training Facility Tour (Firstline Training Centre). Students meet the bus at the North Loading Dock of AnNu

Week of October 4

Topics: Introduction to animal techniques in equine exercise physiology.
Safety around horses; physiological outcome measurements in the resting horse; body mass/condition, rectal body temperature; installing and reading a heart rate monitor; measures of hydration and body composition

Week of October 11
Topics: NO LABS THIS WEEK

Week of October 18
Topics: Effects of exercise on physiological outcome measures - equine treadmill demonstration

Week of October 25
Topics: Journal club #1

Week of November 1
Topics: Journal club #2

Week of November 8
Topics: Journal club #3

Week of November 15
Topics: Presentations

Week of November 22
Topics: Presentations

Week of November 29
Topics: Presentations

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.

6 Assessments

6.1 Marking Schemes & Distributions

<table>
<thead>
<tr>
<th>Name</th>
<th>Scheme A (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture Quiz #1</td>
<td>20</td>
</tr>
<tr>
<td>Lecture Quiz #2</td>
<td>20</td>
</tr>
<tr>
<td>Presentation</td>
<td>20</td>
</tr>
<tr>
<td>Lab Reports (x2)</td>
<td>20</td>
</tr>
<tr>
<td>'7 Days Out&quot; essay</td>
<td>5</td>
</tr>
<tr>
<td>Journal clubs (x3)</td>
<td>15</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

6.2 Assessment Details

**The human and humane side of equine sport (5%)**
- **Due:** Fri, Sep 24, 11:59 PM, Submit via dropbox on Courselink
- **Learning Outcome:** 3
  - Details on this assignment are provided in the lab manual for Week 1.

**Lab Report - Week of October 4 (10%)**
- **Due:** End of your lab during week of October 4
- **Learning Outcome:** 1, 2, 3
  - Details on this assignment are provided in the lab manual.
  - Lab reports must be submitted to your instructor at the end of your lab.

**Lab Report - Week of October 18 (10%)**
- **Due:** Fri, Nov 19, 11:59 PM, Submit via Dropbox by November 19, 11:59pm
- **Learning Outcome:** 1, 2, 3
  - Details on this lab report are provided in the lab manual. Lab report must be submitted to Dropbox by November 19, 11:59pm.

**Lecture Quiz 1 (20%)**
- **Date:** Online via courselink
- **Learning Outcome:** 1, 2, 3
  - Quiz will test understanding of material from Weeks 1 through 6. Date TBD

**Lecture Quiz 2 (20%)**
- **Date:** Online via courselink
- **Learning Outcome:** 1, 2, 3
  - Quiz will test understanding of material from Weeks 7 through 12. Date TBD
Presentation (20%)
Learning Outcome: 1, 2, 3
Students will choose a topic pertaining to an aspect of equine exercise physiology.

1. Prepare a one-page handout targeting horse trainers, which provides background on the importance of the topic, common equine health/performance problems that are associated with the topic, and training strategies to optimize adaptation of the horse to improve performance and health within the scope of the topic.

2. Prepare a presentation of 20 minutes which briefly presents the one-page handout, and then provides the scientific evidence for its content.

Journal Clubs (x 3) (15%)
Learning Outcome: 3
Each student will select a peer-reviewed, primary research publication (NOT a review article). Each student will:

1. prepare and hand in a 200-word lay summary of the article. This lay summary must be practical and understandable by a non-scientific audience.
2. provide the citation for the rest of the lab group at least 7 days prior to the Journal Club
3. During the Journal Club, briefly summarize the paper (max 2 minutes) and then lead the rest of the lab group in discussion of the paper. Maximum 10 minutes per paper.

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

<table>
<thead>
<tr>
<th>Percentage Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>90-100 (A+)</td>
<td>Outstanding. 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</td>
</tr>
<tr>
<td>80-89 (A- to A)</td>
<td>Very Good to Excellent. The student demonstrated a very good understanding of the material at a level of performance warranting scholarship consideration.</td>
</tr>
<tr>
<td>70-79 (B)</td>
<td>Acceptable to Good. The student demonstrated an adequate to good understanding of the course material at a level of</td>
</tr>
<tr>
<td>Grade</td>
<td>Description</td>
</tr>
<tr>
<td>-------</td>
<td>-------------</td>
</tr>
<tr>
<td>65-69 (C)</td>
<td><strong>Minimally Acceptable.</strong> 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.</td>
</tr>
<tr>
<td>0-64 (F)</td>
<td>An inadequate performance.</td>
</tr>
</tbody>
</table>

### 6.4 Dropbox submissions

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/

6.5 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

7 Course Statements

7.1 Grading Policies

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.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac-ac-ac-s.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 you 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
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.
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, changes in classroom protocols, and academic schedules. Any such changes will be announced via CourseLink and/or class email.

This includes on-campus scheduling during the semester, mid-terms and final examination schedules. 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

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).

8.11 Covid-19 Safety Protocols

For information on current safety protocols, follow these links:

- https://news.uoguelph.ca/return-to-campuses/how-u-of-g-is-preparing-for-your-safe-return/
• https://news.uoguelph.ca/return-to-campuses/spaces/#ClassroomSpaces

Please note, these guidelines may be updated as required in response to evolving University, Public Health or government directives.