



# EQN\*2040 Equine Anatomy and Physiology

Winter 2022

Section(s): C01

Department of Animal Biosciences

Credit Weight: 0.50

Version 1.00 - January 10, 2022

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## 1 Course Details

### 1.1 Calendar Description

This course examines the gross anatomy and physiology of the horse. All the major body organs will be studied in relation to their function in the equine. Comparative analysis will be made to other domestic farm animals.

**Pre-Requisites:**

BIOL\*1050

**Restrictions:**

Registration in BBRM.EQM, BSC(Agr).AGRS, 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 Timetable

#### Class schedule and location

Lecture      Tuesday and Thursday at 2:30 p.m. – 3:50 p.m.

Lab            Section 1 - Wednesday 11:30 a.m. - 2:20 p.m.

Section 2 - Monday 2:30 p.m. - 5:20 p.m.

Section 3 - Monday 8:30 a.m. - 11:20 a.m.

In-person locations: **Lectures** held in: MCKN room 121, **Labs** held in: ANNU room 110

## 1.3 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>	By appointment.

## 2.2 Teaching Assistants

<b>Teaching Assistant (GTA):</b>	Nadia Golestani
<b>Email:</b>	golestan@uoguelph.ca
<b>Teaching Assistant (GTA):</b>	Amir Sarrafchi
<b>Email:</b>	asarraf@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, TAs 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 TAs 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.

## 2.4 Netiquette Expectations

### Netiquette Expectations

The course website is considered the classroom and the same protections, expectations, guidelines, and regulations used in face-to-face settings apply. Inappropriate behaviour will not be tolerated. Examples of inappropriate online behaviour include:

- Posting inflammatory messages about your instructor or fellow students;
- Using offensive language;
- Copying or presenting someone else's work as your own;
- Adapting information from the Internet without using proper citations or references;
- Buying or selling term papers or assignments;
- Posting or selling course materials to course notes websites;
- Having someone else complete your quiz or completing a quiz for/with another student;
- Stating false claims about lost quiz answers or other assignment submissions;
- Threatening or harassing a student or instructor;
- Discriminating against fellow students, instructors, and/or TAs;
- Using the course website to promote profit-driven products or services;
- Attempting to compromise the security or functionality of the learning management system; and
- Sharing your username and password.

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## 3 Learning Resources

### 3.1 Required Resources

**Horse Anatomy: A Coloring Atlas (Kainer, McCracken) (Textbook)**  
Available at Bookstore.

**EQN\*2040 Lab Manual (Notes)**

### 3.2 Recommended Resources

**Anatomy of the Horse (6th Edition) by Budras, Klaus Dieter, Sack, W.O., Rock, Sabine**  
Available online at (Textbook)

<http://primo.tug->

[libraries.on.ca/primo\\_library/libweb/action/dlDisplay.do?vid=GUELPH&docId=vtug4389209&fn=per](https://libraries.on.ca/primo_library/libweb/action/dlDisplay.do?vid=GUELPH&docId=vtug4389209&fn=per)

Available online at the Library

**Essential Equine Studies: Book 1 – Anatomy and Physiology. Julie Brega. (Textbook)**

ISBN 0851318932 (available at Bookstore. Also on Reserve in Library)

**Anatomy and Physiology of Farm Animals (Frandsen) (Textbook)**

e-version available through UofG Library.

### 3.3 Other Resources

1. Horse Anatomy Workbook (Raynor)
2. Conditioning Sport Horses (Clayton)
3. Equine Exercise Physiology (Hinchliff, Geor, & Kaneps)
4. Horse Anatomy: A Pictorial Approach to Equine Structure (P. Goody)
5. Clinical Anatomy of the Horse (Clayton)
6. Equine Color Genetics (Sponenberg)
7. The Glass Horse (Platinum Performance)
8. The Visible Horse: Anatomy in Motion 1 (Susan Harris)

### 3.3 Course Technologies and Technical Support

#### System and Software Requirements

This course will use a variety of technologies including:

- CourseLink (main 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

Students are responsible for ensuring that their 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): Mon thru Friday 8:30am-8:30pm; Saturday: 10am-4pm; Sunday 12pm-6pm

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

All lectures will be conducted using Microsoft Teams. The link to the course Teams page will be sent to all registered students. Teams will also 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/campuslogin>

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## **4 Learning Outcomes**

## 4.1 Course Learning Outcomes

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

1. Be able to recognize and identify the major anatomical structures of the horse.
  2. Explain the function of the major equine anatomical structures and systems.
  3. To relate physiological functions to anatomical structures.
  4. To integrate knowledge of anatomy and physiology as it relates to the living horse.
  5. To compare physiological differences between horses and other species.
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## 5 Teaching and Learning Activities

### 5.1 Lecture

<b>Week of January 10</b> <b>Topics:</b>	Introduction to Anatomy and Physiology
<b>Week of January 17</b> <b>Topics:</b>	Gastrointestinal physiology
<b>Week of January 24</b> <b>Topics:</b>	Skeletal system. Axial and appendicular skeleton. Anatomy and physiology of bone and joints. The stay apparatus.
<b>Week of January 31</b> <b>Topics:</b>	The Integument. Skin, hair and hoof. Hoof form and function. Coat colour and markings.
<b>Week of February 7</b> <b>Topics:</b>	Muscular system. Identify main locomotory muscles. Anatomy and physiology of muscle. Interaction between skeletal and muscular system in movement.
<b>Week of February 14</b> <b>Topics:</b>	Cardiovascular system. Structure and function of blood. Components of the circulatory system. Cardiac cycle.
<b>Week of February 21</b> <b>Topics:</b>	WINTER BREAK – NO CLASSES THIS WEEK
<b>Week of February 28</b> <b>Topics:</b>	Respiratory system. Body's defense system to protect the lungs. Gas exchange processes. Respiratory cycle.
<b>Week of March 7</b> <b>Topics:</b>	Urinary system. Functional physiology. Hormonal influences. Role of kidney in red blood cell formation. Factors that affect urine concentration.
<b>Week of March 14</b>	

**Topics:** Nervous system.

**Week of March 21**

**Topics:** Endocrine system. Identify organs associated with hormone production. Differentiate between protein and steroid hormones - production and mode of action.

**Week of March 28**

**Topics:** Immune system. Humeral defenses - cellular, complement, antibodies, cell-mediated. Antibody production and antibody-antigen interactions. Concept of histocompatibility.

**Week of April 4**

**Topics:** Growth and Development of the Foal

## 5.2 Lab

**Week of January 17**

**Topics:** Introduction to lab portion of course; safety procedures and protocols; video 'Equine Anatomy'

**Week of January 24**

**Topics:** Gross anatomy of the gastrointestinal system

Lab Quiz 1

**Week of January 31**

**Topics:** Examination of equine skeletal anatomy via models.

Lab Quiz 2

**Week of February 7**

**Topics:** Dissection of lower leg. Coat colour genetics.

Lab Quiz 3

**Week of February 14**

**Topics:** Muscles and introduction to conformation.

Lab Quiz 4

**Week of February 28**

**Topics:** Mid-term quiz online via Courselink

**Week of March 7**

**Topics:** Dissection equine heart and lung.

Lab Quiz 5

**Week of March 14**

**Topics:** Dissection of kidney and urinalysis.

Lab Quiz 6

### Week of March 21

**Topics:** Dissection of equine brain and eye.

Lab Quiz 7

### Week of March 28

**Topics:** Diagnostic immunology

Lab Quiz 8

### Week of April 4

**Topics:** No lab this week

## 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 (%)
The Ultimate Equine Anatomy and Physiology Study Guide!	25
Laboratory Reports	24
Laboratory Quizzes	11
Quiz 1	15
Quiz 2	25
Total	100

### 6.2 Assessment Details

#### The Ultimate Equine Anatomy and Physiology Study Guide! (25%)

**Due:** Fri, Mar 25, 11:59 PM, DropBox

**Learning Outcome:** 1, 2, 3, 4, 5

Your task is to create the Ultimate Equine Anatomy and Physiology Study Guide! Students will work in groups of 6-8 people. Each group will select one of the anatomical systems below (only one group per system, first come first served!) and will prepare 3 study guide



items for your system.

**STEP 1:** Choose one of the following systems: gastrointestinal system, appendicular skeleton, axial skeleton, hooves, hair and skin, muscles, cardiovascular system, respiratory system, urinary system, nervous system, endocrine system, coat colour genetics

**STEP 2:** Distribute the workload amongst your group members to achieve the following 3 tasks:

Section A. prepare a 6-8 minute oral presentation on the anatomy and physiology of your system

Section B. Prepare a graphical one-page handout which clearly and creatively demonstrates the unique anatomical and physiological features of your system in the horse and compare and contrast to the same system in a human.

Section C. Prepare a 'Cheat Sheet' on your system. Must include a ~500-word description of your system, a list of 5 key scientific references pertaining to your system published in 2020 and/or 2021, and 10 study questions plus answers pertaining to your system.

Study guides must be uploaded to DropBox by the due date and will then be posted on Courselink by your Instructor for your classmates to use in preparation for the final exam.

Study guides will be graded on completeness of content, creativity in presentation, and evidence of background knowledge as described in the rubric below.

#### Grading rubric for Study Guide Assignment:

This rubric will be applied by your Instructor to each of Section A (Oral Presentation), Section B (Visual Handout) and Section C (Cheat Sheet) for each Anatomical System. The resulting Group grade will make up 50% of the individual student's grades, with the remaining 50% coming from peer evaluation from your group members (see Group Member Scoresheet below).

	< 5 <i>(Fail)</i>	5-5.9 <i>(Minimally Acceptable)</i>	6-6.9 <i>(Acceptable)</i>	7-7.9 <i>(Good)</i>	8-10 <i>(Excellent)</i>	Total Instructor Score
<b>Content</b>	inadequate	A barely adequate performance. Demonstrates a	An adequate performance. Demonstrates a generally	A more than adequate performance. Demonstrates	An outstanding performance. Demonstrates	

familiarity with the subject matter, and attempts to present the material in a thorough manner are partially successful	adequate grasp of the subject matter and a moderate ability to present the material in a critical and constructive manner.	a thorough grasp of the subject matter, and an ability to organize and present the material in a critical and constructive manner.	a superior grasp of the subject matter, and an ability to go beyond the material in a critical and constructive way
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<b>Creativity</b>	inadequate	Demonstrates some degree of creativity, but attempts to present the material in a clear and creative manner are only partially successful.	Demonstrates an adequate degree of creativity, and presents ideas in a somewhat clear and logical manner	Demonstrates a good degree of creativity, and presents ideas in a clear and logical manner	Demonstrates a high degree of creativity and a superior ability to organize, analyze, and integrate ideas
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<b>Background knowledge</b>	inadequate	Displays some understanding of the relevant literature	Demonstrates an adequate familiarity with and understanding of the relevant literature	Demonstrates a good familiarity with and understanding of the relevant literature	Demonstrates a thorough familiarity with and understanding of the relevant literature
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### Group member Scoresheet

Complete the scoresheet below for each one of your group members (do not give yourself a score). Scoresheets must be submitted by email to your TA (golestan@uoguelph.ca) on the due date of your Assignment.

Group member name:

**Overall Score /30**

- contributed equally to the overall workload /10
- attended all group meetings /10
- contributed creative ideas to the overall project /10

### Laboratory Reports (24%)

**Learning Outcome:** 1, 2, 3, 4

See Laboratory Schedule; Unless otherwise specified, all lab reports must be handed in at end of each lab. Lab work can be done in groups of 5 or less, however reports are graded as individual efforts.

### Laboratory Quizzes (11%)

**Learning Outcome:** 1, 2, 3, 4

See lab schedule

### Quiz 1 (15%)

**Date:** Week 8

**Learning Outcome:** 1, 2, 3, 4, 5

Quiz via courselink during your regularly scheduled lab session. See Laboratory Schedule

### Quiz 2 (25%)

**Learning Outcome:** 1, 2, 3, 4, 5

Date TBA. Quiz online via courselink during the final week of classes.

## 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. The late penalty will be charged for each day later than 11:59pm.

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.shtml>

for information on regulations and procedures related to Academic Consideration.

## 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.

## 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 make a booking at least 14 days in advance, and no later than November 1 (fall), March 1 (winter) or July 1 (summer). Similarly, new or changed accommodations for online quizzes, tests and exams must be approved at least a week ahead of time.

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, 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-campus/how-u-of-g-is-preparing-for-your-safe-return/>
- <https://news.uoguelph.ca/return-to-campus/spaces/#ClassroomSpaces>

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

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