



BIOM*3010 Biomedical Comparative Anatomy

Fall 2020

Section(s): 01

Department of Biomedical Sciences

Credit Weight: 0.50

Version 14.00 - September 03, 2020

1 Course Details

1.1 Calendar Description

This lecture and laboratory course is designed for students interested in the biomedical and health sciences. Labs provide an introduction to veterinary anatomy, with small and large animal dissections. Human and clinical veterinary anatomy, as well as biomechanical and functional differences are considered.

Pre-Requisites:

1 of BIOL*1070, BIOL*1080, BIOL*1090

Restrictions:

This is a Priority Access Course. Enrolment may be restricted to particular programs or specializations or semester levels during certain periods. Please see the department of Biomedical Sciences website for more information.

1.2 Course Description

In this course, you will learn and practice comparative and veterinary anatomy. Drawing on similarities in form and pattern from multiple species, you will gain experience and background knowledge to investigate the anatomy of any mammal. Our focus will be structural features of multiple domestic mammals, including the rabbit, cat, dog, sheep and pony. Other mammals will be considered as appropriate. By putting individual anatomical features into a broader comparative context you will discover aspects of clinical and functional anatomy, and that of humans, and begin to acquire the language of anatomy.

1.3 Timetable

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

1.4 Final Exam

Exam time and location is subject to change. Please see WebAdvisor for the latest information.

2 Instructional Support

2.1 Instructional Support Team

Instructor: Matthew Vickaryous
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Instructor: James Petrik
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Course Co-ordinator: Matthew Vickaryous
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Lab Technician: Roman Poterski
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Lab Technician: Sarah Donato
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2.2 Teaching Assistants

Teaching Assistant: TBD TBD

3 Learning Resources

3.1 Additional Resources

Additional resources (Textbook)

As our course involves the dissection of many different species, there is no one textbook that provides sufficient coverage. All the necessary information to complete the labs will be provided on Courselink.

Additional information can be sourced from a variety of comparative anatomy textbooks available at the library. Some examples are listed below.

- Veterinary Anatomy - Dyce, Sack and Wensing (**If you are intending to apply to the DVM program you might consider purchasing any edition of this from the 2nd to the 5th**).
- Mammalian Anatomy: the Cat, second edition - Sebastiani, A.M. and D.W. Fishbeck

- Miller's Guide to the Dissection of the Dog - Evans and deLahunta
- Introduction to Veterinary Anatomy and Physiology – Aspinall and O'Reilly
- Study of the Cat, with Reference to Human Beings - Walker and Homberger
- Vertebrate Dissection 5th edition - Walker
- Functional Mammalian Anatomy - Taylor & Weber
- Functional Anatomy of the Mammal - Leach
- Manual and Dissection Guide for Mammalian Anatomy - Donnelly
- Comparative Anatomy and Embryology - Ballard
- Grant's Method of Anatomy - Grant and Basmajian
- Grant's Atlas of Anatomy - Grant Gray's Anatomy 35th edition
- Stedman's Medical Dictionary, Illustrated
- Dorland's Illustrated Medical Dictionary, ref.
- Saunder's Comprehensive Veterinary Dictionary, Blood & Studdert, ref.
- The Language of Medicine - Davi-Ellen Chabner,
- Basic Terms of Anatomy and Physiology, B.F. Squires, Saunders, Toronto
- Electronic journals are available on the UoG Library site, e.g., the Journal of Anatomy, Journal of Morphology, Journal of Zoology, etc...

4 Learning Outcomes

The primary goal of this course is to provide you with a practical working knowledge of comparative and veterinary anatomy. By the end of this course you should be familiar with anatomical terminology and the fundamental similarities and differences between major organs and organ systems in multiple small and large animal species.

4.1 Course Learning Outcomes

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

1. interpret and explain the meaning of anatomical terms
2. recognize and explain the interrelationships between organs and organ systems
3. recognize and describe elements of the skeleton
4. explain the function and action of skeletal muscles
5. describe the anatomy and contents of the thorax and abdomen
6. describe the flow of blood throughout the body, including the heart
7. recognize and explain the anatomical differences between female and male rabbits, cats, dogs, sheep and ponies
8. recognize and explain the anatomical differences between various species
9. interpret and correctly identify anatomical structures from unknown species
10. explain the use of various non-invasive imaging modalities

5 Teaching and Learning Activities

- a. Lecture topics: bones & muscles; digestive & respiratory systems; cardiovascular system; urinary and reproductive systems; current topics in anatomy.
- b. Clinical anatomy, development and function are dealt with as they relate to the understanding of definitive anatomy.

5.1 Lecture

Topics:	Course introduction
Topics:	Osteology, Myology, and Musculoskeletal Injuries
Topics:	Mammalian Body Plan and Integumentary System
Topics:	Digestion and Respiration Systems
Topics:	Cardiovascular System
Topics:	Urogenital System
Topics:	Current Topics in Anatomy

5.2 Lab

Topics:	Due to the pandemic, the lab component of Biomedical Comparative Anatomy will primarily involve asynchronous learning via online dissection videos and the lab manual (both accessed via Courselink). In addition, most weeks there will be optional in-lab opportunities to view previously dissected specimens in lab. Images of these specimens will also be posted on Courselink. Graduate Teaching Assistants (GTAs) will host open (online) office hours to answer questions related to lab material.
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optional in-lab opportunities:

Students choosing to participate in the optional in-lab opportunities may do so during the lab section they are registered in. Each week, students will be assigned a time slot to view the material. Lab sections are held:

Tuesday, 11:30 - 02:20 or 02:30 - 05:20, Rooms OVC 1618 and 1602

Thursday, 11:30 - 02:20 or 02:30 - 05:20, Rooms OVC 1618 and 1602

Due to safety concerns and the logistical challenges associated with hosting these optional in-lab opportunities, you:

1. Are required to download the SafeGryphon app and complete the COVID-19 screening form, including the Ontario COVID-19 Self-Assessment Tool, every day you are scheduled to come to the lab.
2. Are encouraged to download the COVID alert app.
3. Are required to log onto CourseLink and complete the EHS COVID-19 Infection Prevention and Control Awareness Training
4. Must review the University of Guelph Health and Safety Protocols: Face-to-Face Delivery Document
5. Will be assigned a time slot within the lab section you are registered within to view the material.
6. Cannot switch lab sections or time slots - you may only attend the in-lab time you are assigned.
7. Must follow all the guidelines and instructions. These include bringing and wearing a mask, a clean lab coat, and closed-toe shoes. You must bring these items with you. Please note: NO lab coats will be provided, and you cannot enter the lab without one.
8. Cannot bring items into the dissection lab. To minimize the potential for transmission, no paper, cell phones, computers or tablets are allowed into the dissection labs. Students are not permitted to take photographs of the dissection specimens or models while in the lab. However, photographs of the dissection specimens used each week will be posted by the instructors on Courselink.
9. Must arrive no earlier than 15 minutes prior to your time slot. Please note, late arrivals cannot be accommodated.
10. Cannot touch the specimens, unless specifically instructed.

Topics:

Osteology

Topics:	Myology
Topics:	Body Cavities, Respiratory System
Topics:	Digestive System
Topics:	Cardiovascular System 1 (heart and blood vessels cranial to heart)
Topics:	Cardiovascular System 2 (blood vessels caudal to heart)
Topics:	Urogenital System

6 Assessments

6.1 Marking Schemes & Distributions

Your final grade will be the average of your 3 highest exam marks. Therefore, you may write all four exams and take the 3 highest marks, or write only 3 out of the four exams. Please note: there are no make-up exams or rescheduled sittings.

6.2 Assessment Details

Midterm Exam 1 (33.33%)

Date: Mon, Oct 5, virtual (online)

The midterm exam covers material presented in lecture, lab manual, and supplementary lab images. Your final grade will be based on your best 3 out of 4 exams. Please note: there are no make-up exams or rescheduled sittings.

Midterm exam 2 (33.33%)

Date: Mon, Nov 2, virtual (online)

This midterm exam covers material presented in the lecture, lab manual, and supplementary lab images. This exam is cumulative, and will cover material previously considered during midterm 1. Your final grade will be based on your best 3 out of 4 exams. Please note: there are no make-up exams or rescheduled sittings.

Midterm exam 3 (33.33%)

Date: Mon, Nov 30, virtual (online)

The midterm exam covers material presented in lecture, lab manual, and supplementary lab images. This exam is cumulative, and will cover material previously considered during midterms 1 and 2. Your final grade will be based on your best 3 out of 4 exams. Please note: there are no make-up exams or rescheduled sittings.

Final Exam (33.33%)

Date: , TBA

The final exam covers material presented in lecture, lab manual, and supplementary lab images. This exam is cumulative, and will cover material previously considered during midterms 1, 2 and 3. Your final grade will be based on your best 3 out of 4 exams. Please

note: there are no make-up exams or rescheduled sittings.

7 Course Statements

7.1 Notes on schedule

Unless circumstances dictate otherwise, lectures are likely to be held synchronously.

You are expected to become familiar with anatomical terminology as soon as possible. All exams are described under Evaluation below. Lectures will be given by Dr. Vickaryous, Dr. Petrik, or occasionally by a guest speaker.

7.2 Lecture information

Lectures will provide a general overview of the anatomical systems of the body, including some details of the organs included, as well as aspects of their development and function. Except for guest speakers, each Powerpoint lecture will be available on CourseLink the night before the lecture (or earlier).

7.3 Laboratory Information

Due to the pandemic, the labs will primarily involve asynchronous learning via the lab manual and online dissection videos.

There will also be optional in-lab ('face-to-face') opportunities.

Students seeking to attend the optional in-lab opportunities must attend the lab section they are assigned. Late arrivals cannot be accommodated. Attending the optional in-lab opportunities requires that you bring and wear a mask and a clean lab coat, as well as closed-toe shoes. Students must bring their own mask, lab coat, and shoes. **NO LAB COATS** will be provided. Students must adhere to all guidelines and instructions during the in-lab opportunities. Failure to adhere to the guideline and instructions will result in the loss of in-lab opportunities.

Dissection specimens

Fresh and preserved animals and/or animal tissue are used for teaching purposes in this course. All animals are protected by the Animals for Research Act of Ontario (1980), the Guidelines for the Care and Use of Experimental Animals (Canadian Council on Animal Care), and the Animal Care Policies of the University of Guelph.

Note:

- 1. In the dissection laboratory a mask, clean lab coat, and closed-toe shoes must be worn at all times.**

2. **Safety glasses are strongly recommended**

3. No paper, cell phones, computers or tablets are allowed into the dissection labs. Students are not permitted to take photographs of the dissection specimens or models while in the lab. However, photographs of the dissection specimens used each week will be posted by the instructors on Courselink.

Preparation for the in-lab opportunities

Come prepared. Read the appropriate section in the lab manual, review the appropriate lecture notes and consult other texts or references as necessary.

Safety in the laboratory is a priority at all times. In order to ensure safety of all participants, the safety procedures/guidelines provided by the instructor must be followed.

Please read the information regarding lab safety and etiquette provided on Courselink. ** If you injure yourself during the lab and require medical attention, please notify one of the instructors.

7.4 Expectations for exams

Exams questions will draw information from both the lectures and the labs (including the online dissection videos, the lab manual, and any supplementary images posted to Courselink). Do not treat lectures and labs as separate entities.

7.5 Exams

There are three **midterm exams** (held during class time) and a **final exam** (scheduled by the registrar). Each exam is worth 33.33%. Your final grade in the class will be based on the average of your 3 highest marks out of the four exams. All exams will be held online. Midterm exams 2 and 3, and the final exam will be cumulative, and will include material covered earlier in the course.

There are NO make-up exams. If you miss one midterm or the final, your final grade will be calculated as the average of your 3 other exams.

7.6 Missed Examinations

There are NO make-up exams.

If you miss one midterm or the final, your grade will be calculated based on the 3 remaining exams (no documentation is required).

Please note: **students must write either midterm 3 or the final exam.** Students who only have grades for midterms 1 and 2 **must** write the (registrar scheduled) final exam.

If you miss more than one midterm, *and proper documentation is provided*, the final exam will be re-weighted so that it will be worth 66.66%.

7.7 Electronic etiquette

Inappropriate online behaviour will not be tolerated. Examples of inappropriate online behaviour include:

- Posting inflammatory messages about your instructor or fellow student
- Using obscene or offensive language online
- 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 online
- 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
- Sharing your user name and password
- Recording lectures without the permission of the instructor

All exams are closed book. The use of electronic devices, online or paper notes (including the lecture notes, lab manual and textbooks), online or physical models, and/or consulting websites or any form of online, electronic or physical source of information during the exams is **strictly prohibited.**

Students are not permitted to communicate with each other or with any other person during the exams.

Students are not permitted to take photographs during the optional in-lab opportunities.

Please note that **electronic audio and/or visual recordings of lectures and laboratories are not permitted** without the signed consent of the course coordinator.

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.
