



BIOM*3010 Biomedical Comparative Anatomy

Fall 2022

Section(s): C01

Department of Biomedical Sciences

Credit Weight: 0.50

Version 1.00 - August 15, 2022

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
Email: rpotersk@uoguelph.ca

Lab Technician: Sarah Donato
Email: sdonato@uoguelph.ca

2.2 Teaching Assistants

Teaching Assistant (GTA): TBD TBD

3 Learning Resources

3.1 Recommended Resources

Lab manual and dissection videos (Lab Manual)

Access to the lab manual, as well as supplementary lab dissection videos, is available on the Courselink webpage

3.2 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 for the DVM program you might consider purchasing this**).
- 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. demonstrate safe and collaborative laboratory skills
4. recognize and describe elements of the skeleton
5. explain the function and action of skeletal muscles

6. describe the anatomy and contents of the thorax and abdomen
 7. describe the flow of blood throughout the body, including the heart
 8. recognize and explain the anatomical differences between female and male rabbits, cats, dogs, sheep and ponies
 9. recognize and explain the anatomical differences between various species
 10. interpret and correctly identify anatomical structures from unknown species
 11. explain the use of various non-invasive imaging modalities
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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:	Mammalian Body Plan and Integumentary System
Topics:	Osteology, Myology, and Musculoskeletal Injuries
Topics:	Digestion and Respiration Systems
Topics:	Cardiovascular System
Topics:	Urogenital System
Topics:	Current Topics in Anatomy

5.2 Lab

Topics: Schedule
 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

Note: Please advise the instructor immediately if you wish to drop the course so that lab groups can be re-organized.

Topics: Osteology

Topics: Myology

Topics: Body Cavities, Respiratory System

Topics: Digestive System

Topics: Cardiovascular System

Topics: Urogenital System

6 Assessments

6.1 Assessment Details

Midterm Exam 1 (33%)

Date: October 3rd, In class

The midterm exam covers material presented in lecture, lab, and the lab manual. 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%)

Date: October 31st, In class

The midterm exam covers material presented in lecture, lab, and the lab manual. 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%)

Date: November 28th, In class

The midterm exam covers material presented in lecture, lab, and the lab manual. 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%)

Date: , TBA

The final exam covers material presented in lecture, lab, and the lab manual. 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

Lectures are in MCLN, room 102; labs are in OVC 1618/1602.

You are expected to become familiar with anatomical terminology as soon as possible. All tests and assignments 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, downloadable/printable copies of each lecture will be available on Courselink the night before the lecture (or earlier).

7.3 Laboratory Information

The laboratories will provide a reasonably in depth exposure to structures that comprise each anatomical system, including their three-dimensional locations with respect to other structures in the species considered, and methods for locating them in cadavers. Dissection labs emphasize self-directed learning so be prepared to explore. Students will dissect in groups of 10. Each group members is responsible for all structures on both sexes of all animals, and therefore should cycle through multiple dissections of each species.

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.

Required items

1. **In the laboratory a clean lab coat, gloves, pants that completely cover your legs, and close-toed shoes are required.**
2. ***Safety glasses are strongly recommended***
3. The following dissection equipment will be useful: blunt probe, scalpel handle and several blades (not #11), heavy scissors (semiblunt or blunt/sharp points), tissue forceps (1x2 teeth), dressing forceps. Ask for the kit by the course number (BIOM*3010) or instructor (Dr. Vickaryous).
4. Students are required to print the course lab manual from the Courselink Content page and bring a copy to lab. This manual provides an outline for each lab exercise and is a useful study guide.

Preparation for the laboratories

Come to lab prepared. Read the appropriate section in the lab manual, review the appropriate lecture notes and consult other texts or references as necessary. You may find it useful to prepare in your lab groups.

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. It is the responsibility of each student to attend the safety orientation that is given at the beginning of the first lab.

Please read the information regarding lab safety and etiquette provided on Courselink. You must complete the quiz on Courselink titled '[Lab Safety and Etiquette in BIOM*3010](#)' before you can begin the first lab. **** If you injure yourself during the lab and require medical attention, please notify one of the instructors.**

7.4 Expectations for lecture and laboratory exams

You are expected to ***incorporate and synthesize information covered in both lecture and lab.*** **Lectures and labs are not separate entities.** Lectures provide the theoretical background, whereas labs provide practical hands-on opportunities to investigate anatomical structures across a variety of mammals. **Do not study for the lecture and lab separately.** Anything covered in lab and lecture may be included on any exam in this course.

7.5 Practical 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. Midterm exams 2, 3 and the final exam are cumulative. **You must write one of midterm exam 3 or the final exam.** There are NO make-up exams or rescheduled seatings. If you miss one midterm exam, your final grade will be calculated as the average of your other three exams.

7.6 Missed Examinations

There are NO make-up exams.

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

Please note: you must write either midterm 3 or the final exam. Students that do not write midterm 3 must write the Registrar-scheduled final exam.

If you miss more than one exam, *and proper documentation is provided*, the final exam will be reweighted so that it will be worth 66.66% (provided a grade was received for the midterm practical exam).

Please note: **students cannot write a 100% final exam** - at least one of the midterm exams must be written during the scheduled semester.

7.7 Electronic etiquette

The use of laptop computers and other portable electronic devices can be very disruptive to the classroom environment. Such devices are permitted in class provided that they are used strictly in support of class related activities (e.g., note taking) and are not disturbing to other students. Please note that emailing, electronic and text messaging, other forms of telephone and electronic communication, and the use of other electronic devices (e.g., portable music devices and cell phones) are **not permitted during the lecture or laboratory periods**. Students failing to comply with this request will be asked to leave the classroom.

Please note that electronic audio and/or visual recordings of lectures and laboratories are not permitted without the signed consent of the course coordinator. The use of electronic devices during exams is strictly prohibited.

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.
