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  
Email: mvickary@uoguelph.ca  
Telephone: +1-519-824-4120 x53871  
Office: OVC 2624

Instructor: James Petrik  
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Course Co-ordinator: Matthew Vickaryous  
Email: mvickary@uoguelph.ca  
Telephone: +1-519-824-4120 x53871  
Office: OVC 2624

Lab Technician: Roman Poterski  
Email: rpotersk@uoguelph.ca

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

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 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.
• Saunderv’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

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: 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.

<table>
<thead>
<tr>
<th>Topics</th>
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<tbody>
<tr>
<td>Osteology</td>
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<tr>
<td>Myology</td>
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<tr>
<td>Body Cavities, Respiratory System</td>
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**Topics:**
- MIDTERM PRACTICAL (LAB) EXAM (osteology + myology only)
- Digestive System
- Cardiovascular System 1 (heart and blood vessels cranial to heart)
- Cardiovascular System 2 (blood vessels caudal to heart)
- Urogenital System
- Review Lab
- FINAL PRACTICAL (LAB) EXAM (everything)

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### 6 Assessments

#### 6.1 Assessment Details

**Midterm Practical (Lab) Exam (30%)**
- **Date:** October 1st or 3rd, In Lab
  - The midterm practical exam will be in a bell-ringer (station-to-station) format. You must sign-up in advance in order to reserve a place at one of the offered exam times.

**Final Practical (Lab) Exam (35%)**
- **Date:** November 19th or 21st, In Lab
  - The final practical exam will have a similar format to that of the Midterm

**Final Written Exam (35%)**
- **Date:** TBA
  - Details will be posted on Courselink

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### 7 Course Statements
7.1 Notes on schedule

Lectures are in the ALEX, room 100; 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, printable copies of each Powerpoint lecture will be available on Courselink the night before the lecture (or earlier). You may find it useful to bring copies of these lectures to class.

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 will receive one rabbit and one fetal pig to dissect. Each lab section will receive one cat, one dog, and one sheep to dissect. The entire class (i.e., all three lab sections) will receive one pony. Each group members is responsible for all structures on all animals, and should cycle through the dissection of each specimen.

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 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 will be required to sign an Affirmation of Safety Awareness sheet 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. Material presented in lecture will be included on the lab exams and vice versa. Do not study for the lecture and lab separately. Anything covered in lab and lecture may be included on any exam or assignment in this course.

7.5 Practical Exams

There are two practical (lab) exams, a midterm (in lab, either Tuesday Oct 2nd or Thursday Oct 4th) and a final (in lab, either Tuesday Nov 20th or Thursday Nov 22nd). The midterm will only cover osteology and myology, and related materials from the lectures; the final covers everything, including materials from before the midterm. These exams are both bell-ringer (station-to-station) in format. Each station will include one or more anatomical specimens and ask a series of one or more questions. You will have a limited amount of time to answer the question(s) at each station and you cannot revisit stations. The final practical exam is cumulative.

We will reward students that demonstrate a superior level of understanding or marked improvement over the semester.

If the grade on your final practical exam is 90% or greater, or if you receive a grade that is 10% or higher than your midterm practical exam grade, your final practical exam grade will count for both the midterm and final practical exams. That is, instead of 35%, your final practical exam will count as 65%.

Written documentation is required if you are unable to attend your assigned lab exam.

7.6 Missed Examinations

Due to the logistics of organizing the practical exams, we cannot schedule make-up exams.
If the midterm practical (lab) exam is missed, and proper documentation is provided, the final practical (lab) exam will be reweighted so that it will be worth 65%. Students that miss the midterm practical (lab) exam must write the final lab exam.

If the final practical (lab) exam is missed, and proper documentation is provided, the final written exam will be reweighted so that it will be worth 70% (provided a grade was received for the midterm practical exam).

Please note: students cannot write a 100% final exam - at least one of the practical 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

8.3 Drop Date

Courses that are one semester long must be dropped by the end of the fortieth class day;
two-semester courses must be dropped by the last day of the add period in the second semester. The regulations and procedures for course registration are available in the Undergraduate and Graduate 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

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.

More information can be found on the SAS website
https://www.uoguelph.ca/sas

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