

**BIOMEDICAL COMPARATIVE ANATOMY**  
**(formerly COMPARATIVE MAMMALIAN ANATOMY)**  
**BIOM\*3010, Fall 2015**

Lectures: Monday, Wednesday, 02:30 - 03:20, Room: JTP Bldg. 214  
Laboratory: Thursday, 11:30 – 02:20 or 02:30 – 05:20, Rooms OVC 1618 and 1602

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**Calendar Description:**

This lecture and laboratory course provides an introduction to veterinary anatomy and includes small (cat, dog) and large (ruminant, equine) dissections. Clinical anatomy and functional differences are considered.

**Course Goals:**

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.

**Synopsis:**

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 four domestic mammals: the 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.

**Course Content:**

- 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.

## Laboratory schedule:

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| <i>Date</i>   | <b>Thursday (labs)</b>  |
|---------------|---|
| 15-Sep        | Osteology   |
| 22-Sep        | Myology   |
| 29-Sep        | Review / completion of osteology and myology                                    |
| <b>6-Oct</b>  | <b>Midterm Practical (Lab) Exam</b>   |
| 13-Oct        | Body cavities (and salivary glands), upper digestive system, respiratory system |
| 20-Oct        | Diaphragm and lower digestive system  |
| 27-Oct        | Heart and vessels to pectoral girdle, forelimb & head                           |
| 3-Nov         | Vessels to pectoral girdle, forelimb & head (cont.)                             |
| 10-Nov        | Vessels to abdomen, pelvis and hindlimb / start urogenital system               |
| 17-Nov        | Finish urogenital system / review   |
| <b>24-Nov</b> | <b>Final Practical (Lab) Exam</b>   |

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

### Office hours

Office hours are **by appointment only**. Please see Instructor after class or contact them by email to set up an appointment.

### Textbook

The recommended textbook for the course is:

**Sebastiani, A.M. and D.W. Fishbeck. 2005. Mammalian Anatomy: the Cat, second edition  
Morton Publishing Company, Englewood, Colorado.**

This textbook will be particularly useful for completely the lab dissection exercises. Students are strongly advised to read appropriate sections of this text in advance of the labs. The textbook will be supplemented by lab exercises available on Courselink.

### Notes on schedule

Lectures are in the John T. Powell Building, room 214; 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.

### 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.

### 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. Students will dissect in groups of 10. Each group will receive two cats to dissect. The entire lab section will receive one dog and one sheep. The entire class (i.e., both 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 and gloves 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. Cost: approx \$25, Campus Bookstore. 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.
5. There is a recommended textbook for this course: Mammalian Anatomy: the Cat, second edition (Sebastiani and Fishbeck, 2005). It is available from the Campus Bookstore. However, any anatomy/comparative anatomy textbook would be useful to consult.

### 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 in the lab introduction. This information sheet will also be handed out at the beginning of the first lab. 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.

***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.

**Evaluation**

The dates of all evaluation activities are on the schedule, and are at normal class times unless indicated otherwise.

- (A) **Midterm Practical (Lab) Exam** (*in lab October 6th*) (= 20%)  
 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.
- (B) **Problem Box Research Project**
- Group poster presentation (*poster due October 27<sup>th</sup>*)
    - Research poster based on anatomical problem box specimens (= 16%)
  - Constructive reviews of three posters (*3% each, due November 4<sup>th</sup>*)
    - Includes reviewing poster format, content, and asking questions of presenters during both poster sessions (to be held on *October 31<sup>st</sup>*) (= 9%)
- (C) **Final Practical (Lab) Exam** (*in lab November 24<sup>th</sup>*)  
 The final practical exam will have a similar format to that of the Midterm (= 25%)
- (D) **Final Written Exam** (*December 5, 14:30-16:30*) (= 30%)  
 Details will be posted on Courselink
- total = 100%**

### **Problem Box Research**

Each dissection group will receive a problem box containing or referencing one or more anatomical specimens. These specimens will form the basis of the problem box research assignment. Members of each dissection group will be responsible for identifying and developing a research question related to the anatomical specimen. For most specimens the question could be framed as either “the anatomical basis of...” or “the anatomy and functional consequences of...”; alternative questions can be developed in consultation with the instructional staff. Once a question has been developed, members of the group will research the specimen/condition and present the findings in poster format. **ALL posters are due** in both hard copy and pdf formats on October 27<sup>th</sup>. Late submissions are penalized **4% of your final grade per day**. Any posters received later than 4 days will receive a zero (0) for the assignment and group members will be unable to participate in the poster review exercise. Attending the poster sessions (to be held on October 31<sup>st</sup>) and asking and answering questions during the poster sessions is **required**. Students failing to attend a poster session will be penalized **2% of their final grade**. Each student will be randomly assigned 3 posters to evaluate. Evaluations are to be conducted online (using the PEAR system) and are due **November 4<sup>th</sup>**. Late evaluations will receive a zero (0) for the assignment.

Posters must be submitted in two formats: as a hard copy (printed poster) format and a pdf. The pdf version must be uploaded to the PEAR system (details to be provided on Courselink). Printed posters may be either a single sheet or composed of multiple sheets of 8.5 x 11” paper.

### **Practical Exams**

There are two practical (lab) exams, a midterm (in lab, Oct 6<sup>th</sup>) and a final (in lab, Nov 24<sup>th</sup>). 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, and 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 25% your final practical exam will count as 45%.

### **Academic matters**

#### Accessibility

The University of Guelph is committed to creating a barrier-free environment. Providing services for students is a shared responsibility among students, faculty and administrators. This relationship is based on respect of individual rights, the dignity of the individual and the University community's shared commitment to an open and supportive learning environment. Students requiring service or accommodation, whether due to an identified, ongoing disability or a short-term disability should contact the Centre for Students with Disabilities as soon as possible.

For more information, contact CSD at 519-824-4120 ext. 56208 or email [csd@uoguelph.ca](mailto:csd@uoguelph.ca) or see the website: <http://www.csd.uoguelph.ca/csd/>

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### 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.

### 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. See the undergraduate calendar for information on regulations and procedures for Academic

Consideration: <https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac-ac.shtml>

When possible, this should be done in advance of the missed work or event, but otherwise, as soon as possible after the due date, and certainly **no longer than one week later**. If documentation of your inability to meet that in-course requirement is necessary, the course instructor will request it of you.

### Recording of Materials

Presentations which are made in relation to course work—including lectures—cannot be recorded or copied without the permission of the presenter, whether the instructor, a classmate or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

### Resources

The Academic Calendars are the source of information about the University of Guelph's procedures, policies and regulations which apply to undergraduate, graduate and diploma programs:

<http://www.uoguelph.ca/registrar/calendars/index.cfm?index>

### Academic Misconduct:

The University of Guelph is committed to upholding the highest standards of academic integrity and enjoins 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. The University of Guelph takes a serious view of academic misconduct and it is your responsibility as a student to be aware of and to abide by the University's policy. Included in the definition of academic misconduct are such activities as cheating on examinations, plagiarism, misrepresentation, and submitting the same material in two different courses without written permission. To better understand your responsibilities, read the Undergraduate Calendar at <https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml>;

see also <http://www.academicintegrity.uoguelph.ca/>. You are also advised to discuss any questions you may have with your course instructor, TA, or academic counsellor.

Students should be aware that faculty has the right to use software to aid in the detection of plagiarism or copying and to examine students orally on submitted work. For students found guilty of academic misconduct, serious penalties, up to and including suspension or expulsion, can be imposed.

### E-mail Communication

As per university regulations, all students are required to check their <@mail.uoguelph.ca> e-mail account regularly: e-mail is the official route of communication between the University and its students.

### Drop Date

The last date to drop one-semester courses, without academic penalty, is **November 4, 2016**. For regulations and procedures for Dropping Courses, see the Undergraduate Calendar.

### Copies of out-of-class assignments

Please 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.

### **Additional resources**

A variety of anatomical texts and other resources may be useful as reference material. Some examples are listed below.

- (a) Stedman's Medical Dictionary, Illustrated  
Dorland's Illustrated Medical Dictionary, ref.  
Saunders'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
- (b) Veterinary Anatomy - Dyce, Sack and Wensing (**If you are intending to apply for the DVM program you might consider purchasing this**).  
Miller's Guide to the Dissection of the Dog - Evans and deLahunta  
Grant's Method of Anatomy - Grant and Basmajian  
Grant's Atlas of Anatomy - Grant  
Gray's Anatomy 35<sup>th</sup> edition
- (c) Introduction to Veterinary Anatomy and Physiology – Aspinall and O'Reilly  
Study of the Cat, with Reference to Human Beings - Walker and Homberger  
Vertebrate Dissection 5<sup>th</sup> 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
- (d) Electronic journals are available on the UoG Library site, e.g., the Journal of Anatomy, Journal of Morphology, Journal of Zoology, etc...