

**COMPARATIVE MAMMALIAN ANATOMY**  
**BIOM\*3010, Fall 2010**

Lectures: Monday, Wednesday, 14:30 - 15:20, Room ROZH 102  
Laboratory: Thursday, 9:30 – 12:20 or 13:30 - 16:20, Rooms OVC 1618 and 1602

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**Calendar Description:**

Comparative dissection-based anatomy of mammals. Emphasis is placed on similarities of the basic mammalian body plan. Aspects of development and functional differences are considered.

**Course Goals:**

The primary goal of this course is to provide you with a practical working knowledge of mammalian 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 mammalian species.

**Synopsis:**

In this course you will learn and practice the comparative approach to 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 various commonly used medium-sized laboratory mammals including the rat, guinea pig, rabbit, cat, and monkey. Other mammals will be considered as appropriate. As you will learn, by putting individual anatomical features into a broader comparative context you will discover how mammals are related to each other and to humans (which is clinically relevant when animal research models are considered), and begin to acquire the language of anatomy.

**Course Content:**

- a. Lecture topics: Mammalian body plan; Digestive & Respiratory systems; Musculoskeletal system; Cardiovascular system; Urogenital system; Current topics in mammalogy.
- b. Development and function is dealt with where it relates directly to the understanding of definitive anatomy.

**Computer quizzes:**

Sept10- Oct 3: Digestive & Respiratory Systems

Oct 7-10: Terminology

Oct 14-17: Osteology and arthrology

Nov 4-7: Cardiovascular system

Nov 18-21: Urogenital system and lymphatics

**Laboratory schedule:**

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<i>Date</i>	<b>Thursday (labs)</b>
16-Sep	Body cavities (and salivary glands), upper digestive system, respiratory system
23-Sep	Diaphragm and lower digestive system
30-Sep	Osteology
7-Oct	Arthrology
14-Oct	Myology
<b>21-Oct</b>	<b>Midterm Practical Exam</b>
28-Oct	Heart and vessels to pectoral girdle, forelimb & head
4-Nov	Vessels to abdomen, pelvis and hindlimb
11-Nov	Urogenital system
18-Nov	<b>Review</b>
<b>25-Nov</b>	<b>Final Practical Exam</b>

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**Note: Please advise the instructor immediately if you wish to drop the course, so that people on the waiting list can be admitted and lab groups can be re-organized.**

**Office hours**

Office hours are **by appointment only**. Please see Dr. Vickaryous after class or contact him by email to set up an appointment.

### Notes on schedule

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

You are expected to read the pages on terminology in the lab manual (pp. 1-7) and become familiar with their usage in both lecture and laboratory discussions.

All tests and assignments are indicated in **bold face**, and are described under Evaluation below. Lectures will be given by Dr. Vickaryous, 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.

Printable copies of each Powerpoint lecture will be available on D2L 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 five, often with two or three animals per group

### 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. 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, OVC Bookstore. It is stored under the course number, BIOM\*3010.
3. 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.
4. There is no required textbook for this course.

### Preparation for the laboratories

***You are responsible for all structures labeled or underlined in the course manual.*** The labs will be of most use to you if you come prepared. To prepare, read the appropriate section in your lab manual, watch the lab video (see next paragraph for details), and consult a text or other reference as necessary. You may find it useful to prepare in your lab groups.

Video presentations of how to do each lab will be shown at the beginning of each lab session (8:30 and 12:30). These are also available under the Content tab then Lab Videos on the Courselink site. They are streaming videos and work best on computers on campus, but will also work at home with a sufficiently fast broadband connection and QuickTime installed on your computer. It is highly recommended that you watch them the day before lab. You can then watch them again at the beginning of the lab for reminder, or go straight to your dissection. At the beginning of each lab session there will be a pre-lab talk in room 1602.

***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 provided 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. Also, make yourself aware of the MSD sheets.

\*\* If you injure yourself during the lab and require medical attention, please notify one of the instructors.

### **Evaluation**

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

- (A) 5 Computer Quizzes on topics indicated in the schedule above (worth 1% each, combined = 5%)  
They are on the course's D2L site. They will become available at 6:00am on the first date listed on the schedule, and will be unavailable after 11:59pm on the second date. They are intended to give you feedback on your mastery of the material. You have a maximum of two attempts per Computer Quiz.
  - (B) A Midterm Practical Exam (in lab, October 21<sup>st</sup>) (worth 25%)  
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.
  - (C) Problem Box Report (worth 15%)  
Written group report addressing all five questions (due in class Nov 8<sup>th</sup>)  
Peer and self-evaluation of contribution to report
  - (D) Final Written Exam - details will be posted on Courselink (December 13, 11:30-13:30)(worth 30%)
  - (E) Final Practical Exam (in lab November 25) (worth 25%)  
The final practical exam will have a similar format to that of the Midterm.
- total = 100%**

## Academic matters

### Students with Disabilities

All students registered with the Centre for Students with Disabilities (CSD), please inform Dr. Vickaryous (in private, or *via* e-mail), with a request for your special needs in exams etc. This information will be kept entirely confidential, and is simply to enable us to assist you as far as possible. Any students requesting such assistance should register with CSD first.

### 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.

### Academic consideration

When you find yourself unable to meet an in-course requirement due to illness or compassionate reasons, please advise Dr. Vickaryous in writing (or via e-mail), with your name, address and e-mail contact. Where possible, this should be done in advance of the missed work or event, but otherwise, just 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. Students who find themselves unable to meet course requirements by the deadlines or criteria expected because of medical, psychological or compassionate circumstances beyond their control, should review the regulations on academic consideration in the calendar

<http://www.uoguelph.ca/registrar/calendars/undergraduate/current/pdf/files/calendar.pdf> and discuss their situation with the instructor or program counselor.

Resolution 10, approved by Senate ... “in determining grades for written assignments, the instructor should take into consideration the student’s ability to use correctly and effectively the language appropriate to the assignment.”

### 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

<http://www.uoguelph.ca/registrar/calendars/undergraduate/current/pdf/files/index.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.

### Textbooks and other resources

No one textbook adequately covers the material and concepts of this course, which is why we do not *require* you to purchase one. Use the lab manual as a guide to the level of detail you are expected to know. The lab videos should help you transfer from words and pictures on paper to how things will appear in the lab. 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) Laboratory Anatomy of the White Rat - Chiasson  
Dissection Guide, The Rat, H.G.Q. Rowett  
Dissection Guide, The Rabbit, H.G.Q. Rowett  
An Atlas of Primate Gross Anatomy (Baboon, Chimpanzee and Man), Swindler and Wood  
The Rhesus Monkey, Vol. 1 Anatomy & Physiology, Ed. G.H. Bourne
- (e) Electronic journals are available on the UoG Library site, e.g., the Journal of Anatomy, Journal of Morphology, Journal of Zoology, etc...
- (f) Websites: there are many useful websites from other educational institutions (.edu) which have great text and illustrations to augment the materials for this course. However, you should be aware that these are largely unreviewed sites and may contain factual errors, so check material against a reputable text book if you are uncertain of its accuracy.