

I. General Information

**University of Guelph
College of Biological Sciences
Department of Integrative Biology**

COURSE OUTLINE COMPARATIVE HISTOLOGY - FALL 2016

ZOO*3000 F (3-3) [0.50]. This course provides an introduction to the microscopic structure of the major organ systems of the vertebrate body. Beginning with an examination of epithelial, connective, muscular, and nervous tissues, the course then examines the comparative histology of the circulatory, nervous, digestive, integumentary, respiratory, excretory, reproductive, endocrine, and sensory systems of vertebrates. Prerequisite: ZOO*2090

Teaching Team

Professors	Nicholas Bernier, Office SSC 3467, nbernier@uoguelph.ca, ext. 56093 Frederic Laberge, Office SSC 1465, flaberge@uoguelph.ca, ext. 56238 Office hours: by appointment
Lab Instructor	Colin DeMill, Office SCIE 3511, cdemill@uoguelph.ca, ext. 56557
Teaching Assistant	TBA

Course Schedule

Lectures:	10:00-11:20h Tuesday/Thursday. Room MACK 117. **First lecture Thursday September 8
Labs:	14:30-17:20h Monday/Tuesday Room SCIE 2313 **First laboratory session Monday/Tuesday September 12/13

II. Course Goals

Comparative Histology is primarily a content-driven course. The course provides a basic knowledge of the cell and tissue types of the vertebrate body, primarily concentrating on mammalian tissues. It is assumed that each student has a solid background in (a) the anatomy of the vertebrate body and (b) the physiology of its organs. Please review this material as it will only be briefly mentioned in lectures.

Learning Outcomes By the end of this course, students should be able to:

- 1) Identify and name the four primary tissues of the vertebrate body and explain how the form and function of these tissues are related.
- 2) Identify and name the basic tissue constituents of the major organs and organ systems of vertebrates. Explain how their form and function are related.
- 3) Be able to assess the histology of the tissues of non-mammalian vertebrates by comparison with the mammalian model.
- 4) Name the steps in fixation, staining, and histochemistry of tissues and explain the physical and chemical bases of these procedures.

III. Course Content

A) Lecture Topics

Introduction, Intercellular Substances and Primary Tissues
Epithelia
Connective Tissue Proper
Cartilage and Bone
Blood and Hemopoiesis
Muscle
Blood Vascular System
Lymph Vascular System
Fixation and Staining
Histochemistry
Nervous System
Digestive System
Integuments
Respiratory System
Urinary System
Reproductive Systems (male/female)
Endocrine Systems
Organs of Special Sense

B) Laboratory Exercises

Sept. 12/13 Lab 1. The Microscope/ Epithelia/ Connective Tissue General
Sept. 19/20 Lab 2. Specialized Connective Tissue: cartilage, bone
Sept. 26/27 Lab 3. Blood and Bone Marrow/ Muscle
Oct. 3/4 Lab 4. Blood Vascular System/ Lymph Vascular System
Oct. 10/11 Holidays, no labs
Oct. 17/18 Lab 5. Nervous System
Oct. 24/25 Lab 6. Digestive System: Digestive tract
Oct. 31/Nov. 1 Lab 7. Digestive System: Associated glands/ Respiratory System
Nov 7/8 Lab 8. Integument/Organs of Special Sense
Nov. 14/15 Lab 9. Urinary System/Male Reproductive System
Nov. 21/22 Lab 10. Female Reproductive System/Endocrine System
Nov. 28/29 Final Lab Exam (in SCIE 2313)

Review of Lab Material: As the laboratory component of the course is worth a substantial amount of the final grade, it is expected that students will attend laboratories and use the full time allotment of 3 hours. The laboratory room is used by other courses and alternate times to use the laboratory are limited. Extra time for review will be available by **APPOINTMENT ONLY** (see Instructor). Please note that the laboratory **WILL NOT** be available on weekends or evenings. Do not leave your study of the laboratory material to the weekend or evening before the laboratory exams as the laboratory will not be open! It is up to you, the student, to use effective time management skills and to use the laboratory resources in the scheduled time slots.

IV. Course Resources

"Lecture notes" will be provided on the course website. It is not necessary for students to use these lecture notes unless they feel they will be useful. It is essential to study the topics covered in these lecture notes and the material covered in the laboratory sessions to acquire a basic understanding of histology. However, a personal perspective will only be developed by reading the required text. This reading should be done on a regular basis, should take at least one (1) hour per week, and should keep up with the lecture topics. As a general rule, students should spend as much time out-of-class each week reading and reviewing as they do in class: for this course, this means **on average** at least five (5) hours per week.

- Texts - required Ross, M.H., Pawlina, W. Histology. A Text and Atlas. 6th, 5th or 4th Ed.
Lippincott, Williams & Wilkins, New York.
(OR other text approved by instructors)
- required ZOO*3000 Comparative Histology Laboratory Manual (sold in the first week
of class, **\$10 in cash**)

V. Methods of Assessment

Evaluation will be in the form of a short assignment on the topic of histology in the news, a mid-term exam and final lecture and laboratory exams. In all cases, you will be expected to write using complete sentences and proper grammar. Work should be presented in a well organized fashion. The mid-term exam and final lab exam will be written during class and laboratory time, respectively. For part of the lab exam, labelled class slides will be provided and you will be required to demonstrate cells, primary tissues or components of organs and organ systems to the instructors. Questions, both short answer and longer essay types, will test **both** your control of the factual content of the course **and** laboratory content.

Important Class Days

- First Class - 10:00h Thursday September 8 – Room MACK 117
First Laboratory - 1430h Monday 12th or Tuesday 13th September – Room SCIE 2313
LABS CANCELLED FOR WEEK OF October 10-14

Exam Schedule

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| Short assignment | -Due November 4 th | |
| Mid-term exam | -10:00h, 27 October in class | - Room MACK 117 |
| Final lab exam | -14:30h, 28 or 29 November | - Room SCIE 2313 |
| Final written exam | - time TBA | - Room TBA |

Mark Allocation

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|--------------------|-----|
| Short assignment | 10% |
| Mid-term exam | 20% |
| Final lab exam | 30% |
| Final written exam | 40% |

VI. Course and University Policies

When You Cannot Meet a Course Requirement

Students who are absent from classes during the semester will be expected to make up for missed lecture and lab material on their own. Students who do not write the mid-term or final lab exam for medical or other authorized reasons will **not** be assigned a separate test, but will have their final mark based on a proportionate adjustment of their completed term work. When, for legitimate reasons, an exam is missed, **make sure** that you have given the instructor supporting documentation in writing, with your name, id#, and e-mail contact. See the undergraduate calendar for information on regulations and procedures for Academic Consideration:

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

Drop Date

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

<http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-drop.shtml>

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.

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 or see the website: <http://www.csd.uoguelph.ca/csd/>

Academic Misconduct

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 discourages misconduct. 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.

The Academic Misconduct Policy is detailed in the Undergraduate Calendar:
<http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml>

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.

Academic 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>

VII. Campus Resources

If you are concerned about any aspect of your academic program:

Make an appointment with a program counsellor in your degree program.

<http://www.bsc.uoguelph.ca/index.shtml> or <https://www.uoguelph.ca/uaic/programcounsellors>

If you are struggling to succeed academically:

There are numerous academic resources offered by the Learning Commons including, Supported Learning Groups for a variety of courses, workshops related to time management, taking multiple choice exams, and general study skills. You can also set up individualized appointments with a learning specialist. <http://www.learningcommons.uoguelph.ca/>

If you are struggling with personal or health issues:

Counselling services offers individualized appointments to help students work through personal struggles that may be impacting their academic performance. <https://www.uoguelph.ca/counselling/>

Student Health Services is located on campus and is available to provide medical attention.

<https://www.uoguelph.ca/studenthealthservices/clinic>

For support related to stress and anxiety, besides Health Services and Counselling Services, Kathy Somers runs training workshops and one-on-one sessions related to stress management and high performance situations. <http://www.uoguelph.ca/~ksomers/>