



ZOO*3000 Comparative Histology

Fall 2022

Section(s): 01

Department of Integrative Biology

Credit Weight: 0.50

Version 1.00 - September 07, 2022

1 Course Details

1.1 Calendar Description

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.

Pre-Requisites: ZOO*2090

1.2 Course Description

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.

1.3 Timetable

Please note that course delivery format (face-to-face vs online) is subject to change up to the first-class day depending on requirements placed on the University and its employees by public health bodies, and local, provincial and federal governments. Any changes to course format prior to the first class will be posted on WebAdvisor/Student Planning as they become available.

Lectures and labs will be conducted in-person following the course schedule detailed below.

Lectures: In-person 10:00 - 11:20am Tuesday/Thursday in MCKN 117

**First lecture Thursday Sept. 8, 2022

Labs: In-person 2:30 - 5:20 PM Monday/Tuesday in SSC 2313

**First laboratory session Sept. 12/13

1.4 Final Exam

In-person final exam is based on cumulative course material will take place on **December 13, 2022 2:30 - 4:30 pm**: Location TBD. *Please consult Web Advisor often for latest updates.*

In-person lab exam date TBD

2 Instructional Support

2.1 Instructional Support Team

Instructor:	Adrian Ionescu PhD
Email:	ionescu@uoguelph.ca
Office:	SSC 2312
Office Hours:	Office hours will be held by appointment in-person or via ZOOM and/or Teams to discuss course content, up-coming exams.

Please make an appointment to discuss private matters directly with Dr. Ionescu separately: office hours may be conducted with groups of students who may benefit from questions posed, and discussions with other students.

Lab Co-ordinator:	Emily Martin
Email:	emilym@uoguelph.ca
Telephone:	+1-519-824-4120 x56896
Office Hours:	By appointment

2.2 Teaching Assistants

Teaching Assistant (GTA):	Elizabeth Flatt
Email:	eflatt@uoguelph.ca
Office Hours:	Please post questions to discussion board on CourseLink

where they will be answered ASAP by either the TA (Elizabeth Flatt) or Dr. Ionescu.

Office hours will be held by appointment via ZOOM and/or Teams.

3 Learning Resources

3.1 Required Resources

Histology. A Text and Atlas. (Textbook)

Ross, M.H., Pawlina, W. Histology. A Text and Atlas. 8th, 7th, 6th, 5th or 4th Ed. Lippincott, Williams & Wilkins, New York. Digital edition ISBN 9781496386250.

(OR other text approved by instructors)

3.2 Additional Resources

Course Resources (Notes)

"Lecture notes" will be provided on the course website. Material and exercises covered in the laboratory sessions will contribute toward 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.

3.3 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/>

4 Learning Outcomes

4.1 Course Learning Outcomes

By the end of this course, you 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.
 5. Be able to extract and interpret histology information from the primary scientific literature.
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5 Teaching and Learning Activities

5.1 Lecture

Topics: Weekly Lecture Topics

0. Introduction, Remote Format Orientation
1. Intercellular Substances, Primary Tissues, Epithelium
2. Connective Tissue Proper, Cartilage and Bone
3. Blood and Hemopoiesis, Muscle
4. Cardiovascular and Lymphatic Systems

5. Midterm
6. Nervous System
7. Digestive System: Stomach and Intestine
8. Digestive Glands, Respiratory System
9. Integuments, Organs of Special Senses
10. Urinary System, Reproductive Systems
11. Endocrine System

5.2 Lab

Topics: Weekly Laboratory Topics

1. Introduction to Histology, Microscopes and Epithelia and Connective Tissue
2. Specialized Connective Tissue: Cartilage & Bone
3. Specialized Connective Tissue: Blood & Bone Marrow, Muscle
4. Circulatory System & Lymphoid Organs: Reticuloendothelial System

5. Fall Break - No lab this week
6. Nervous System
7. Digestive System: Stomach and Intestine
8. Digestive Glands, Respiratory System
9. Integument, Sense Organs
10. Urinary System, Male Reproductive System
11. Endocrine System, Female Reproductive System
12. Lab Exam

5.3 Important Class Days

First Class - 10:00 - 11:20 am Thursday September 8

First Laboratory - 2:30 - 5:20 pm Monday/Tuesday September 12/13

6 Assessments

Evaluation will be in the form of pre-lab quizzes (9 total with lowest grade dropped), 1 lab assignments during laboratories, an in-person midterm exam, and a final in-person exam. When required, you will be expected to write using complete sentences and proper grammar. Work should be presented neatly in a well-organized fashion.

The lab assignments will involve assigned readings from the primary literature.

6.1 Marking Schemes & Distributions

Name	Scheme A (%)
Lab Component	40
Midterm Exam	25
Final Exam	35
Total	100

6.2 Assessment Details

Midterm Exam (25%)

Date: Thu, Oct 20, 10:00 AM - 11:20 AM

In-person mid-term composed of multiple choice and short answer questions covering topics from the first half of the course.

Pre-lab quizzes (5%)

Short (5 minute) quizzes covering material from the lab manual (questions from previous and present lab)

Lab Assignment (15%)

Individual written assignment based on a student-selected recent publication which involves histological techniques.

Lab exam (20%)

Date: Mon, Nov 28, 2:30 PM - Tue, Nov 29, 2:30 PM

Practical exam assessing student understanding of materials covered during lab.

Final Exam (35%)

Date: Tue, Dec 13, 2:30 PM - 4:30 PM

In-person, cumulative final exam consisting of multiple choice and short answer questions.

7 Department of Integrative Biology Statements

7.1 Academic Advisors

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

- Make an appointment with a program counsellor in your degree program. [B.Sc. Academic Advising](#) or [Program Counsellors](#)

7.2 Academic Support

If you are struggling to succeed academically:

- Learning Commons: 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/>
- Science Commons: Located in the library, the Science Commons provides support for physics, mathematic/statistics, and chemistry. Details on their hours of operations can be found at: <http://www.lib.uoguelph.ca/get-assistance/studying/chemistry-physics-help> and <http://www.lib.uoguelph.ca/get-assistance/studying/math-stats-help>

7.3 Wellness

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.selfregulationskills.ca/>

7.4 Personal information

Personal information is collected under the authority of the University of Guelph Act (1964), and in accordance with Ontario's Freedom of Information and Protection of Privacy Act (FIPPA) <http://www.e-laws.gov.on.ca/index.html>. This information is used by University

officials in order to carry out their authorized academic and administrative responsibilities and also to establish a relationship for alumni and development purposes.

For more information regarding the Collection, Use and Disclosure of Personal Information policies please see the Undergraduate Calendar.

(<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/intro/index.shtml>)

7.5 Course Offering Information Disclaimer

Please note that course delivery format (face-to-face vs online) is subject to change up to the first-class day depending on requirements placed on the University and its employees by public health bodies, and local, provincial and federal governments. Any changes to course format prior to the first class will be posted on WebAdvisor/Student Planning as they become available.

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.
