



# BIOM\*4070 Biomedical Histology

Fall 2020

Section(s): 01

Department of Biomedical Sciences

Credit Weight: 0.50

Version 1.00 - July 09, 2020

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## 1 Course Details

### 1.1 Calendar Description

This histology course is designed for students interested in biomedical sciences. Basic tissue types and major organ systems of mammals will be examined using virtual microscopy. Lectures and discussions will focus on the relationship of tissue structure to cell and organ functions and the effects of injury or disease on microscopic structure.

**Pre-Requisites:** (MCB\*2050 or MCB\*2210), (1 of ANSC\*3080, BIOM\*3200, HK\*3810, HK\*3940)

**Restrictions:** ZOO\*3000 This is a Priority Access Course. Enrolment may be restricted to particular programs or specializations. See department for more information.

### 1.2 Course Description

#### Subjects Covered

- Basic tissue preparation & cytology (sub-cellular structures)
- Tissues: epithelium (lining and glandular), connective tissue (fibrous, blood, adipose, cartilage, bone), muscle & nervous tissue
- Organs and organ systems: integument, cardiovascular (arteries, veins, lymphatic vessels, basic heart wall), lymphatic system (lymph nodes, spleen, bone marrow, thymus), gastrointestinal system (esophagus, stomach, small & large intestines, liver, pancreas), respiratory system, and urinary system
- Examples of histopathology (especially cancer) and brief overview of histology of special tissues/organs (e.g., special senses, mammary gland, endocrine glands, etc.)
- Selected histological techniques and the kinds of information they impart

## 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.

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# 2 Instructional Support

## 2.1 Instructional Support Team

**Instructor:** Jodi Morrison  
**Email:** jmorris7@uoguelph.ca  
**Telephone:** +1-519-824-4120 x54958  
**Office:** OVC 3660  
**Office Hours:** N/A  
 Laboratory Instructor

**Course Co-ordinator:** Alicia Viloría-Petit  
**Email:** aviloría@uoguelph.ca  
**Telephone:** +1-519-824-4120 x54925  
**Office:** OVC 3647  
**Office Hours:** N/A  
 Main Instructor

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# 3 Learning Resources

## 3.1 Required Resources

### Course Material (Other)

**The following required resources are available on the BIOM\*4070 CourseLink site:**

Biomedical Histology Laboratory Guide, 2020

Electron micrographs (TEM, SEM) and other demonstration micrographs, 2020

Copies of Power Point lecture presentations for 2020

### On Objective Pathology WEB site (Website)

<http://www.myobjective.cloud/Default.aspx?global=/UoGuelph/OVC>

Library of virtual slides

## 3.2 Recommended Resources

**Junqueira's Basic Histology: Text & Atlas, A. L. Mescher, 15th edition, 2018 (or earlier editions) (Textbook)**

**Histology: A text and atlas, W. Pawlina, 8th edition, 2018 (or earlier editions) (Textbook)**

### 3.3 Additional Resources

**Items on ARES reserve (Textbook)**

Copies of suggested textbooks, as well as cell biology and electron microscopy books, some of which are available electronically

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## 4 Learning Outcomes

### 4.1 Course Learning Outcomes

By the end of this course, you should be able to:

1. Recognize at the light and electron microscope level sub-cellular structures, cell types, tissues, and organs
  2. Extrapolate from 2-dimensional sections to 3-dimensional structure
  3. Appreciate the effects of tissue preparation on morphology
  4. Relate microscopic morphology to cell/tissue/organ function
  5. Relate microanatomy to other areas of biology
  6. Appreciate the use of histological knowledge and techniques in medicine
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## 5 Teaching and Learning Activities

**Lectures: AD-S Virtual Classroom    11:30 -12:50 Tuesday & Thursday**

**Labs: AD-S Virtual Lab        2:30-5:20 Wednesday or Thursday**

**Lectures: There are 2 lectures per week (80 min. each):** They will highlight concepts of tissue or organ organization and functional correlation, and integrate with other biological disciplines. The suggested readings complement the lectures and extend the information we are able to provide in lectures and labs. *Use the lecture learning objectives and the lab manual as the guide to what information you need to know for exams.*

**Laboratories:** Labs are an essential component of this course. During scheduled lab periods, we will introduce information that will help you interpret slides and assist you in identifying and interpreting structures. The slides are 'virtual slides' and are hosted by a server on an external site. Access is described in the lab manual. Electron micrographs and some light micrographs are also posted on the Courselink site. Because lab materials are digital, they are

available anywhere you can access the internet. This will aid in self-study and review, **but we strongly recommend that students attend the virtual lab.**

It is your responsibility to manage your time, and it is your responsibility to get help when you need it. If for some reason you are unable to attend your assigned lab section any given week, you are welcome to come to the other section if possible; you do not need to request permission to do so.

There is no separation on exams between lecture and lab information. **The Quizzes will involve identification, cell/tissue structure and organization, and functional correlates.** Most students should expect to spend additional time outside of the lab practicing their skills in identification in order to do well in the course. **Mastery of the material in first half of the course is necessary to understand the second half.**

## 5.1 Lecture

### Week 1

**Topics:** Lecture #1: Introduction & Cytology

Viloria-Petit

### Week 2

**Topics:** Lecture #2: Basic Tissues & Epithelium

Lecture #3: Epithelium & Glands

Viloria-Petit

### Week 3

**Topics:** Lecture #4: Fibrous Connective Tissue

Lecture #5: Adipose Tissue & Blood

Viloria-Petit

### Week 4

**Topics:** Lecture #6: Cartilage

Lecture #7: Bone

Viloria-Petit

### Week 5

**Topics:** Lecture #8: Muscle

Lecture #9: Muscle & Nerve Tissue

Viloria-Petit

**Week 6**

**Topics:**

Lecture #10: Nerve Tissue

Viloria-Petit

**Week 7**

**Topics:**

Lecture # 11: Cardiovascular System

Lecture #12: Lymphatic System

Viloria-Petit

**Week 8**

**Topics:**

Lecture #13: Integument

Lecture #14: Urinary System I

Viloria-Petit

**Week 9**

**Topics:**

Lecture #15: Urinary System II

Lecture #16: Digestive System I

Viloria-Petit

**Week 10**

**Topics:**

Lecture #17: Digestive System II

Lecture #18: Liver

Viloria-Petit

**Week 11**

**Topics:**

Lecture #19: Liver & Pancreas

Lecture #20: Respiratory System I

Viloria-Petit

**Week 12**

**Topics:** Lecture #21: Respiratory System II

Lecture #22: Special Topic I - Histology & Cancer

Viloria-Petit

**Week 13**

**Topics:** Lecture #23: Special Sense: Eye and Taste

TAs

**5.2 Lab**

**Week 1**

**Topics:** No Lab this week

**Week 2**

**Topics:** Lab #1: Techniques & Cytology

Viloria-Petit, Jodi Morrison, and TAs

**Week 3**

**Topics:** Lab #2: Epithelium & Glands

Viloria-Petit, Jodi Morrison, and TAs

**Week 4**

**Topics:** Lab #3: Fibrous Connective Tissue, Adipose Tissue & Blood

Viloria-Petit, Jodi Morrison, and TAs

**Week 5**

**Topics:** Lab #4: Cartilage & Bone

Viloria-Petit, Jodi Morrison, and TAs

**Week 6**

**Topics:** No lab this week

**Week 7**

**Topics:** Lab #5: Muscle & Nerve Tissue

Viloria-Petit, Jodi Morrison, and TAs

**Week 8**

**Topics:** Lab #6: Cardiovascular & Lymphatic Systems

Viloria-Petit, Jodi Morrison, and TAs

**Week 9**

**Topics:** Lab #7: Integument

Viloria-Petit, Jodi Morrison, and TAs

**Week 10**

**Topics:** Lab #8: Urinary System

Viloria-Petit, Jodi Morrison, and TAs

**Week 11**

**Topics:** Lab #9: Digestive System

Viloria-Petit, Jodi Morrison, and TAs

**Week 12**

**Topics:** Lab #10: Liver & Pancreas; Respiratory System

Viloria-Petit, Jodi Morrison, and TAs

**Week 13**

**Topics:** No Lab

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## 6 Assessments

There is no midterm or final examination for this course. Instead, six quizzes will be held

throughout the semester. They will include identification of structures and questions about these structures, and will require concise explanations of histological features as well as integration of information with other aspects of biology or medicine. Answers will be from a few words to short sentences.

Quiz questions will be in an on line format, with both light and electron micrographs included.

**Quizzes will be run under principles of 'universal design'. Thus, these evaluation instruments are designed to give ALL students in the course time and a half to complete the questions.**

Quizzes will be written during scheduled lecture time, every 1-3 weeks; each quiz will last about 25 minutes. The final grade in the course will be determined from the average of two of the three quizzes covering material from the first half of the course and two of the three quizzes covering material from the second half of the course (i.e. 25% for each quiz). The four quizzes with the highest grades will be used to calculate the final grade.

Quizzes will be written at the **beginning** of the lecture in question, so please be on time! You will not be given any additional time if you are late, regardless of the reason.

## 6.1 Assessment Details

**Quiz #1 Cytology (ultrastructure and microscopy), epithelium and glands (0%)**

**Date:** Sept 29, 2020

Quiz #1 may count for 25% of final grade

**Quiz #2: Conective Tissues: Fibrous, Adipose, Blood, Cartilage, and bone (0%)**

**Date:** Oct 15, 2020

Quiz #2 may count for 25% of final grade

**Quiz #3: muscle and nerve tissue (0%)**

**Date:** Oct 27, 2020

Quiz #3 may count for 25% of final grade

**Quiz #4: Cardiovascular and lymphatic system (0%)**

**Date:** Nov 3, 2020

Quiz #4 may count for 25% of final grade

**Quiz #5: Integument & Urinary System (0%)**

**Date:** Nov 17, 2020

Quiz #5 may count for 25% of final grade

**Quiz #6: Digestive System, Liver, Pancreas, and Respiratory System (0%)**

**Date:** Dec 1, 2020

Quiz #6 may count for 25% of final grade

## 7 Course Statements



## 7.1 Policy on Missed Quizzes

If a student is **absent for a quiz**, no action needs to be taken UNLESS the student has already missed another quiz, in which case written documentation of the reason for the absence must be provided to Dr. Vioria-Petit as soon as possible. **Any such documentation for missed quizzes not sent to Dr. Vioria-Petit by the final class day will result in a grade of zero percent (0/25) for the quiz(zes) in question.**

## 7.2 Department of Biomedical Sciences Final Exam Policy

**This policy does not apply to this course, as there is no final exam.**

### Eligibility

Student eligibility for this process is at the discretion of the Chair. For students with three or more exams in a 48-hour period in the first week of the final exam schedule (which includes an exam in a course offered by the Department of Biomedical Sciences) the department will offer a second writing of the exam in the second week of the final exam period. This policy would not apply to exams requiring complicated set-up, such as lab exams.

### Process

The second sitting will be scheduled by the Chair's Office and all such second writings will be offered all together only on one day and time to be decided by the Chair and invigilated by the course instructor and by the course TA (if one is assigned and deemed necessary) or invigilator. Following completion of the exam, the instructor/TA will mark the final exam and submit the grade to the registrar no later than 7 days after the last final exam is scheduled that semester.

Eligible students can request this privilege by sending an e-mail message **by the 40<sup>th</sup> class day** to the Department Chair. The Chair will consult with the instructor/course coordinator with a copy to Kim Best (kbestb@uoguelph.ca) regarding consideration of the request. In their request, the student **MUST** list their complete final exam schedule and a verbatim copy of the following statement:

"This is an accurate representation of my final exam schedule for the current semester as issued by the Registrar's office. I understand that if I have misrepresented my exam schedule and am granted permission to write the [course code] exam at the later date on that basis, I will have violated the University's academic misconduct policy which may result in a grade of zero for the [course code] final exam. I understand that steps will be taken to verify my course enrollment and final exam schedule."

***Although we will make every effort possible to accommodate these requests, circumstances***

***may not allow accommodation in all situations, and so we cannot guarantee that requests will be approved. All email requests will receive a written response from the Chair regarding status of approval.***

## 7.3 Course Evaluation

Students will be asked to complete an online questionnaire on instructors' teaching competence. This is part of information required by the University to evaluate faculty performance for purposes of Tenure, Promotion and Selective Increases. The information is supplied to the chair of the instructor's home department, and the evaluations will be delivered to the respective instructors only after the final grades have been submitted to the Registrar's Office.

## 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 book their exams at least 7 days in advance and not later than the 40th Class Day.

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>

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