

**COURSE OUTLINE**  
**BIOMEDICAL HISTOLOGY (BIOM\*4070)**  
**FALL SEMESTER, 2015 0.5 Credits**

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**Lectures:** **Richards Building (RICH) room 2520**  
Tuesday 11:30 -12:50  
Thursday 11:30 -12:50

**Labs:** **OVC Room 1691**  
2:30-5:20 Wednesday, Thursday, or Friday

**Getting help:** There are no official office hours. Please make appointments by e-mail to see one of us. Get help before you get too far behind; we are here to help and we are happy to help.

**SCHEDULE - BIOMEDICAL HISTOLOGY**  
**Fall 2015**

<b>Lec #</b>	<b>Date</b>	<b>Lecture</b>	<b>Laboratory W, Th</b>
1	Sept. 10	Introduction & Cytology; BC	
2	Sept. 15	Tissues & Epithelium; BC	NO LAB
3	Sept. 17	Epithelium & Glands; BC	
4	Sept. 22	Fibrous Connective Tissue; BC	Lab #1 Technique & Cytology
5	Sept. 24	Adipose & Blood cells; BC	
6	Sept. 29	Cartilage & Bone; AVP	Lab #2 Epithelium & Glands
7	Oct. 1	Bone; AVP	
8	Oct. 6	Muscle; AVP	Lab #3 Fibrous CT, Adipose & Blood
9	Oct. 8	Muscle & Nerve; AVP	
-	Oct. 13	<b>NO CLASS- Fall Break</b>	Lab #4 Cells Cartilage & Bone
10	Oct. 15	Nerve; AVP	
11	Oct. 20	Cardiovascular System; BC	Lab #5 Muscle & Nerve
12	Oct. 22	Lymphatic System; BC	
13	Oct. 27	REVIEW	<b>Mid-term Exam: Stewart Building room 2500; 3:15-4:45, W, Th or F</b>
14	Oct. 29	Integument; BC	
15	Nov. 3	Urinary System; AVP	Lab #6 Cardiovascular, Lymphatic & Integument
16	Nov. 5	Urinary System; AVP	
17	Nov. 10	Digestive Tract; BC	Lab #7 Urinary System
18	Nov. 12	Digestive Tract; BC	
19	Nov. 17	Liver & Pancreas; AVP	Lab #8 Digestive Tract
20	Nov. 19	Respiratory System; AVP	
21	Nov. 24	Respiratory System; AVP	Lab #9 Liver, Pancreas, Respiratory
22	Nov. 26	Special Senses; BC	
23	Dec. 1	Histology & Cancer; AVP	Open review session in lab Wednesday & Thursday
24	Dec. 3	<b>REVIEW</b>	

**This is the proposed schedule: the schedule of lectures and labs may be altered if necessary.**

**Required depth is exemplified by learning objectives in the lectures and self study questions in the lab manual.**

**Final Exam is at 2:30PM - 04:30PM on December 8, 2015; Room TBA**

## Course Objectives

- To recognize at the light and electron microscope level sub-cellular structures, cell types, tissues and organs
- To extrapolate from 2-dimensional sections to 3-dimensional structure
- To appreciate the effects of tissue preparation on morphology
- To relate microscopic morphology to cell/tissue/organ function
- To relate microscopic structure to other areas of biology
- To appreciate the use of histological knowledge and techniques in medicine

## 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 senses
- Selected histological techniques and the kinds of information they impart

## Approach

**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 lab. *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, test your knowledge through informal quizzes that are similar in format to the exams, and provide help 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 under 'Laboratories'. 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 lab.** There is no separation on exams between lecture and lab information. **Both the mid-term and final examination will be taken on a computer and will involve identification, cell/tissue structure and organization, and functional correlates.** Practice quizzes for self study will be posted on Courselink every week and taken up in the lab the

following week. 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.

There is one desktop computer for every 4 students in the lab, and group work is encouraged. However, you are encouraged to bring personal laptop computers, tablets, or smart phones to the lab – as an aid to group work or in order to work alone.

It is your responsibility to manage your time, and it is your responsibility to get help when you need it. **Mastery of the material in first half of the course is necessary to understand the second half.** Procrastination will thus make your life more difficult.

## **Textbook and Resource Materials**

### Suggested Texts:

*Junqueira's Basic Histology: Text & Atlas*  
S. McGurk, 13<sup>th</sup> edition, 2013 (or earlier editions)

*Histology: A text and atlas*  
M.H. Ross and W. Pawlina. 7<sup>th</sup> ed., 2015, or earlier editions.

*Additional Resources:* check ARES reserve system

### On D2L:

Biomedical Histology Laboratory Guide, 2015  
Electron micrographs (TEM, SEM) and other demonstration micrographs  
Copies of Power Point lecture presentations

On Objective Pathology WEB site (<http://images.objectivepathology.com>)  
Library of virtual slides

## **Evaluation**

### **Format for both Mid-term and Final exams:**

Mid-term and final exams will include identification of structures, questions about these structures, concise explanations of histological structures, and integration of information with other aspects of biology or medicine (answers will be from a few words to short paragraphs in length). **Both light and electron micrographs are included on exams.** The informal quizzes provide examples of the format and types of questions that will be on both the mid-term and final exams, and are best used as a self-test to guide your learning and review.

### **Midterm Exam:**

**Week of October 27**

**40% of final grade**

**Stewart Building (OVC Population Medicine) Room 2500**

Exam is taken during scheduled laboratory section; exam runs from 3:15-4:45 (90 minutes); please try to arrive at the exam room 10 minutes early. The midterm will examine your knowledge of basic tissue preparation, sub-cellular structure and tissues: **labs 1-5, lectures 1-10**

**Final Exam:            Tuesday December 8, 2:30-4:30; Romm TBA**  
**60% of final grade**

Questions on the final exam will be **comprehensive**, but will focus on the second half of the course dealing with organ systems: **labs 6-9, lectures 11-23**

### **Policy on Missed Exams and Assignments**

If the mid-term exam is missed, the student is required to provide documentation to the course co-ordinator. Note that problems due to other exams, workload in other courses, or extramural activities (varsity sports, employment, *etc.*) are **not** valid reasons for missing the midterm examination. **If you miss the midterm exam, it is your responsibility to make contact with the course coordinator by Monday November 2.** Contact can be in person or by e-mail; you will be required to provide written documentation for your absence in order to be granted an opportunity for a make-up midterm examination. **You will be asked at that time to choose between one of 2 options for making up this exam: the 1<sup>st</sup> option is to take the make-up mid-term on Thursday November 5 from 5:30-7:00 PM, and the 2<sup>nd</sup> option is to take the make-up mid-term on the same day as the final exam - as an additional 2 hrs of exam on this day.** The second option may be necessary in exceptional circumstances, but is not recommended.

If the **final exam is missed**, application for a deferred exam must be made through the BSc program counsellor's office as outlined in the Academic Consideration and Appeals section of the Undergraduate Calendar.

### **Other Information**

**Course Evaluation:** Students will be asked to complete a 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.

**E-mail Communication** As per university regulations, all students are required to check their <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 Friday, November 6. For regulations and procedures for Dropping Courses, see the Undergraduate Calendar: <http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-drop.shtml>

**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/>

**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.

**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>