HLTH3303 for Fall 2026

MOLECULAR AND CELLULAR PATHOLOGY II

We, the people of the Faculty of Science at Carleton University, acknowledge that our campus is located on the traditionsal, unceded territories of the Algonquin Anishinabeg people. Miigwetch for your hospitality and stewardship of this territory and the teachings that come from it. We are grateful for this land, the air that we breathe, and the water that sustains us all as well as for the animals, plants and other living beings: these enable us to research, teach, mentor, support, study, and learn. We recognize our responsibility to our natural environment and to reconciliation with Indigenous peoples.

Course Instructor: Menno Oudhoff

How to address me: Professor Oudhoff / Menno / Dr. Oudhoff

Gender Pronouns: he/him/his

Email:

Note: If you have or question or would like to talk with me you can send an email (**please include HLTH3303 in subject line**), visit me during student hours (see below), or approach me after lecture.

Student Hours: Monday & Tuesday: 1-2 pm (please email to confirm, as I may have other obligations on certain dates)

Office Location: **Class Location:**

Class Times:

Prerequisites: HLTH 2002 or permission of the department.

Preclusions: n.a.

Department/Unit: HEALTH SCIENCES

Course TA:

Topics Covered and Learning Outcomes

Teaching Statement

I am committed to fostering an environment for learning that is inclusive for everyone regardless of gender identity, gender expression, sex, sexual orientation, race, ethnicity, ability, age, class, etc. It is my hope that our class will support diversity of experience, thought, and perspective. Please feel free to contact me via email or in person to let me know about any experiences you have had related to this class that have made you feel uncomfortable. I will continually strive to create inclusive learning environments and would therefore appreciate your support and feedback. I welcome emails or in-person communications to let me know your preferred name or pronoun.

Mental Health

If you are struggling, please do not hesitate to reach out. I am happy to listen, and/or direct you to resources that might help. In terms of class, if you need extra help or missed a lesson, don't stress! Email me and we will set a time to meet. I'll work with you, I promise. Remember that Carleton also offers an array of mental health and well-being resources, which can be found here.

Course Description

Advanced concepts in cell signaling and function, cell injury and death, tissue structure, wound healing and repair, inflammation, immunity to infection, and cancer. This course will integrate genetic, biochemical and physiological mechanisms that contribute to health and disease.

Course Learning Objectives

On completion of this course, the student will be able to or will:

- Have detailed knowledge of general dogmas in molecular and cellular biology
- Have detailed knowledge of tissue function in homeostasis for organs like the oral cavity, esophagus, stomach, intestines, liver, and pancreas
- Have detailed knowledge of the most common diseases that develop in abovementioned organs
- Understand general molecular and cellular concepts in disease etiology and progresses such as wound healing, inflammatory diseases, certain infectious diseases, and cancer
- Ability to use the obtained knowledge on disease progression and adapt it to any type of disease in any tissue
- Understand the current state in the field of growth factors, biologicals such as monoclonal antibodies, and stem cell biology, in the field of Biology and Medicine.

Topics to be Covered (some adjustments are anticipated, see Brightspace for required learning material (usually it will be the slides (and links to websites within) + PDFs)

Week + Dates	Module	Topics + Required Readings (for learning material see Brightspace for each lecture, normally; slides + PDFs)
1: Sept 14	Introduction	Mol and Cell Biol – Back to Basics Recap of High School and HLTH2002
2: Sept 21	Introduction	Mol and Cell Biol – Back to Basics Recap of High School and HLTH2002
3: Sept 28	Oral cavity	Histology, Biology & Pathology *E.g:* taste, oral wound healing, thrush, saliva
4: Oct 5	Esophagus + Stomach	Histology, Biology & Pathology *E.g:* Barrett's oesophagus, tumorigenesis, *H pylori* (Gastritis / Ulcers)
Oct 12	Thanksgiving	No class
5: Oct 19	**Midterm I**	**In class midterm**
Oct 26	READING WEEK	No class - FALL BREAK
6: Nov 2	Intermezzo I *Guest Lecture:*	Discovery of Growth Factors + Deep dive into cell signaling *Dr. Abizaid – Linking stomach and brain*
7: Nov 9	Midterm discussion Liver + Pancreas	Midterm discussion Histology, Biology & Pathology
8: Nov 16	Small and Large Intestines	Histology, Biology & Pathology *E.g:* Stem cell biology, niche factors, Inflammatory Bowel Disease (IBD), Tumorigenesis
9: Nov 23	*Guest Lecture:* Intermezzo II	*Bill Willmore: Oxygen sensing & Hypoxia* Stem Cells from Development to Medicine (Yamanaka factors, treatments, etc.)
10: Nov 30	**Midterm 2**	**In class midterm**
11: Dec 7	Intermezzo III Intermezzo IV	Gut Microbiota – fables or how it controls our health and disease in general Use of Biologicals in Medicine and How do they affect Mol and Cellular Pathology
12: Dec 11 (Friday)	Make up day	Make up day

Important dates and deadlines can be found here: https://carleton.ca/registrar/registration/dates/academic-dates/, including class suspension for fall, winter breaks, and statutory holidays.

Assessments

Grade Breakdown

COMPONENT	GRADE VALUE	DATE
LAB PORTION	0% (pass/fail)	See Separate Syllabus and Instructor
GUEST LECTURES	5%	Participation mark (2.5% for each)
MIDTERM 1	25%	
MIDTERM 2	25%	
FINAL EXAM (CUMULATIVE)	45%	TBD

In accordance with the Carleton University Undergraduate Calendar Regulations, the final letter grades assigned in this course will have the following percentage equivalents:

A+ = 90-100	B+ = 77-79	C+ = 67-69	D+ = 57-59
A = 85-89	B = 73-76	C = 63-66	D = 53-56
A- = 80-84	B- = 70-72	C- = 60-62	D- = 50-52

F = <50
WDN = Withdrawn from the course
ABS = Student absent from final exam
DEF = Deferred
FND = (Failed, no Deferred) = student could not pass even with 100% on final exam

Late and Missed Work Policies

Missed Work
If a student misses any evaluation without a notification, a grade of 0 will be given for that evaluation.

Missed Midterm Test
If you miss any midterm exams due to circumstances beyond your control, you must use *the academic considerations form* and contact me within 72 hours after the test. The weight of the midterm will normally be transferred to the final exam.

Missed Final Exam
For a missed final exam, students must contact the Registrar's Office (not the instructor or TA) as per university guidelines.

Learning Material(s) and Other Course/Lab-Related Resources

Students are not required to purchase textbooks or other learning materials for this course.

All learning materials will be provided and posted on Brightspace. In general, the learning material consists of lectures) and associated slides and their content (for example they may include movies, or links to websites), as well as the readings (PDFs) posted on Brightspace.

Academic Accommodations and Regulations

Carleton is committed to providing academic accessibility for all individuals. You may need special arrangements to meet your academic obligations during the term. The accommodation request processes are outlined on the Academic Accommodations website (https://students.carleton.ca/course-outline/).

Statement on Chat GPT/Generative AI usage

As our understanding of the uses of AI and its relationship to student work and academic integrity continue to evolve, students are required to discuss their use of AI in any circumstance not described here with the course instructor to ensure it supports the learning goals for the course.

Specifically, you are more than welcome to use these tools to benefit your learning, However, note that we are going towards a level where ChatGPT may not provide the correct answer to your question, depending on how you phrase that question.

Statement on Academic Integrity

Students are expected to uphold the values of academic integrity, which include fairness, honesty, trust, and responsibility. Examples of actions that that compromise these values include but are not limited to plagiarism, accessing unauthorized sites for assignments or tests, unauthorized collaboration on assignments or exams, and using artificial intelligence tools such as ChatGPT when your assessment instructions say it is not permitted.

Misconduct in scholarly activity will not be tolerated and will result in consequences as outlined in Carleton University's Academic Integrity Policy. A list of standard sanctions in the Faculty of Science can be found here.

Additional details about this process can be found on the Faculty of Science Academic Integrity website.

Students are expected to familiarize themselves with and abide by Carleton University's Academic Integrity Policy.

Student Rights & Responsibilities

Students are expected to act responsibly and engage respectfully with other students and members of the Carleton and the broader community. See the 7 Rights and Responsibilities Policy for details regarding the expectations of non-academic behaviour of students. Those who participate with another student in the commission of an infraction of this Policy will also be held liable for their actions.

Student Concerns

If a concern arises regarding this course, **your first point of contact is me**: Email or drop in during student hours and I will do my best to address your concern. If I am unable to address your concern, the next points of contact are (in this order):

Note: You can also bring your concerns to Ombuds services.