

YORK UNIVERSITY
FACULTY OF HEALTH
KINESIOLOGY AND HEALTH SCIENCE

Course: KINE3710 3.0 – Immune System in Health and Disease

Course Webpage: [Moodle](#)

Term: Winter 2017

Prerequisite / Co-requisite: HH/KINE 2011 3.00; HH/KINE 3012 3.00.

Course Credit Exclusion: None. **Note:** May not be taken for credit by Biology or Biochemistry majors.

COURSE DIRECTOR: Dr. Ali Abdul-Sater

Instructor: Dr. Ali Abdul-Sater

Office hours: Posted on Moodle

Office: Chemistry 144

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TA: Holly Echlin

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Email inquiries are welcome, but only emails sent from your **york.ca** account will be answered. Students must indicate their **full name, student number and KINE3710 in the subject line**. Emails not respecting these guidelines will NOT be answered.

TIME AND LOCATION

Lectures: Tuesdays and Thursdays, 11:30 AM – 1:00 PM

Location: LSB 105

COURSE DESCRIPTION

The immune system in health and disease is designed to provide students with an overview of the two main arms of the immune system including innate and adaptive immunity. Additionally, the course will cover the various cellular components and the effector molecules of the immune system. The course ends with a brief update on the research regarding the effects of physical activity on immune responses.

COURSE ORGANIZATION

There are **two lecture hours a week**, where the core concepts of the course will be explained and clarified. Active learning techniques will be implemented, and student

participation is expected. There are no required laboratories. It is expected that each student will review the material to be presented in the class *before the class*.

Learning objectives

The main objective of this course is to enable students to understand the fundamental biology of the innate and the adaptive immune responses. Upon completion of this course, students should be able to:

- Identify the cells and tissues of the immune system, and understand their place and purpose within the human body.
- Describe and characterize the components of the innate and adaptive immune systems and explain how these components are organized to form an immune response.
- Describe and compare the development of B cells and T cells, including the gene rearrangements that generate the antigen receptors and the selective processes that eliminate cells with potential for causing autoimmunity.
- Understand how cellular and humoral immunity work, and the development of immunological memory.
- Evaluate the relationship between exercise, immune function and infection risk.

COURSE TEXT / READINGS

Required Textbook: The Immune System: Fourth Edition, by Peter Parham – Garland Science, 2014.

The textbook is available at York U Bookstore.

Additional readings may be assigned or recommended during the course.

EVALUATION SUMMARY

1. **Online quizzes (Moodle):** 12%, Weekly online quizzes (12 in total) will be conducted on Moodle and will be worth 1% each. Quiz format varies and may include short answer question, fill-ins and multiple choice questions.
2. **Evaluation 1:** 24% (multiple-choice questions), covers the first 7 lectures
Date: Thursday October 20 2016, 11:30 AM – 12:30 PM (during class time)
Location: LSB 105.
3. **Evaluation 2:** 24% (multiple-choice questions), covers the first 7 lectures
Date: Thursday October 20 2016, 11:30 AM – 12:30 PM (during class time)
Location: LSB 105.
4. **Final Evaluation:** 40%. Date and location will be announced later. The final exam is multiple-choice and cumulative but biased towards the final part of the course.

MISSED TERM TEST POLICY

Students with a documented reason for missing a course test, such as illness, compassionate grounds, etc., which is confirmed by supporting documentation (**see below**) may request accommodation from the Course Director. If the note does not confirm that the student was incapacitated on the date of the test, then a grade of "0" will be assigned for the test. **THERE ARE NO MAKE UP TESTS FOR EVALUATIONS 1 AND 2.** Students with **valid excuses (see below)** to miss either one of the first two evaluations will have the weight of the missed test redistributed to the other evaluations.

If **BOTH** evaluations (1 and 2) OR the **Final** test are missed, then students must request deferred standing. To request deferred standing, the student must complete and submit a Deferred Standing Agreement Form (see http://myacademicrecord.students.yorku.ca/pdf/deferred_standing_agreement.pdf) and submit it **along with supporting documentation (see below)** to the Kinesiology office (341 Bethune) **by April 30, 2017**. If Deferred Standing is approved, the weight of all missed tests will be transferred to a cumulative exam to take place in A supplemental examination will be scheduled in May 2016. The time and location of the make-up final examination will be posted on the course website. Although the content examined will be the same, the format may not follow that of the original test. Students who have been granted deferred standing and do not complete the supplemental examination must petition to the Office of the Registrar.

Under no circumstances will accommodations be provided because of conflict with vacation plans or work conflicts.

Missing a test due to weather will be excused **ONLY** if the University closes/cancels classes. In all other cases, **it is the student's responsibility to get to tests on time.** Transit and/or traffic issues are never an excuse to miss exams. Plan to be at exams early.

SUPPORTING DOCUMENTATION

Documentation must be provided by a registered clinical psychologist, psychiatrist, or medical doctor indicating that you were indeed unable to attend on the specific date of the exam. **The form must be submitted to Dr. Abdul-Sater or the Kine Office within ONE week of the missed exam.** Notes from counselors or alternative healing providers are not acceptable. **NOTE: Only the ATTENDING PHYSICIAN'S FORM is acceptable** – no other written note or letter will be accepted. This form may be downloaded from: <http://myacademicrecord.students.yorku.ca/pdf/attending-physicians-statement.pdf>

LECTURES AND CLASSROOM POLICIES

- Class will start on time, so for latecomers, please come into class in the least disruptive manner possible. Arrivals after 12:00pm, are discouraged, as are early departures.

- The use of computers and other electronic devices in class should be limited to activities related to the course. **Please turn off any cell phones and any other disruptive devices.**

- Audio recording (ONLY audio) of the lecture is permitted. **Recordings can only be shared with students enrolled in the course.** Therefore, recordings **CANNOT** be uploaded to public websites or otherwise shared publicly. Students in violation of these policies may have legal action taken against them.

LECTURE OVERVIEW

	SUBJECTS	LECT	DATE
WEEK 1	Course Business / General Introduction to the Immune System	1	January 5
WEEK 2	Pathogens / Phases of the Immune Response	2	January 10
	Cells of the Immune System	3	January 12
WEEK 3	Tissues of the Immune System	4	January 17
	Innate Immune System - How to Recognize a Microbe	5	January 19
WEEK 4	Innate Immune System - Cellular and Humoral Mediators that Target Microbes	6	January 24
	Antibody Structure & Generation of Antibody Diversity	7	January 26
WEEK 5	B Cell Development	8	January 31
EVALUATION 1	Location: LSB 105; Time: 11:30AM - 12:30PM; covers lectures 1-7		February 2
WEEK 6	The MHC Complex & Antigen Presentation	9	February 7
	T Cell Development	10	February 9
WEEK 7	Clonal Selection of Lymphocytes	11	February 14
	T Cell Activation	12	February 16
WEEK 8	<i>Reading Week – No Lectures</i>		<i>February 21</i>
			<i>February 23</i>
WEEK 9	T Cell-Dependent Immune Responses	13	February 28
	Humoral Immunity	14	March 2
WEEK 10	B Cell Signaling, and B Cell Effectors and Antibodies	15	March 7
EVALUATION 2	Location: LSB 105; Time: 11:30AM - 12:30PM; covers lectures 8-14		March 9

	<i>Last date to drop course without academic penalty</i>		<i>March 10</i>
WEEK 11	B-T cell interactions	16	March 14
	Immunological Memory and Vaccination	17	March 16
WEEK 12	Disorders of the Immune Response: Autoimmunity, Sepsis, Allergies	18	March 21
	Cancer and Its Interactions with the Immune System	19	March 23
WEEK 13	Exercise and Infection Risk	20	March 28
	Effects of Exercise on Immune Function	21	March 30
WEEK 14	Review Session	22	April 4
FINAL EVALUATION	Exam Week; Location: TBA. COMPREHENSIVE, COVERING ALL LECTURES.		

IMPORTANT COURSE INFORMATION FOR STUDENTS

All students are expected to familiarize themselves with the following information, available on the Senate Committee on Academic Standards, Curriculum & Pedagogy webpage (see Reports, Initiatives, Documents) -

http://www.yorku.ca/secretariat/senate_cte_main_pages/ASCP.htm

- Senate Policy on Academic Honesty and the Academic Integrity Website
- Ethics Review Process for research involving human participants
- Course requirement accommodation for students with disabilities, including physical, medical, systemic, learning and psychiatric disabilities
- Student Conduct Standards
- Religious Observance Accommodation

ACCOMMODATIONS

York senate policy on Academic Accommodation for Students with Disabilities:

<http://www.yorku.ca/secretariat/policies/document.php?document=68> "York University shall make reasonable and appropriate accommodations and adaptations in order to promote the ability of students with disabilities to fulfill the academic requirements of their programs". Students who feel that there are extenuating circumstances that may interfere with the successful completion of their exams or other course requirements are encouraged to discuss their concerns with Dr. Abdul-Sater as soon as possible. Students with learning, mental health, physical, sensory and medical disabilities who require accommodations in teaching style or evaluation methods should discuss the matter with Counselling and Disability Services (CDS - N110 Bennett Centre; <http://www.yorku.ca/cds/>) and the Course Director (Dr. Abdul-Sater) early in the term so that appropriate arrangements can be made. Please note: you are not required to disclose the nature of your condition. If you are registered with CDS, DrAbdul-Sater will work with CDS to ensure all reasonable accommodations are met.