

YORK UNIVERSITY
FACULTY OF HEALTH
KINESIOLOGY AND HEALTH SCIENCE

Course: KINE3710 3.0 – Immune System in Health and Disease

Course Webpage: [Moodle](#)

Term: Winter 2019

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: Appointments only by email

Office: TBA

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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: ACW 005

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.
- Explain the diseases associated when the immune system mounts unwanted or unnecessary responses.

COURSE TEXT / READINGS

Required Textbook: The Immune System: Fourth Edition, by Peter Parham – Garland Science, 2014. The textbook is available at York U Bookstore.

Lecture Slides: Slides are uploaded to Moodle but might be modified and updated prior to each lecture. **These slides are copyrighted and cannot be shared in any way.**

EVALUATION SUMMARY

1. **Online quizzes (Moodle):** 9%, Weekly online quizzes (9 in total; on weeks 2, 3, 4, 6, 8, 9, 11, 12 and 13; see lecture overview) will be conducted on Moodle and will be worth 1% each. Quiz format varies and may include short answer question, matching, fill-ins and multiple-choice questions.
2. **Evaluation 1:** 34% (60 multiple-choice questions), covers the lectures 1 - 7
Date: **Tuesday, Jan 29 2019**, 11:30 AM – 12:45 PM
Location: TBA.
3. **Evaluation 2:** 38% (65 multiple-choice questions), covers the lectures 8 - 15
Date: **Thursday, Mar 7 2019**, 11:30 AM – 12:50 PM
Location: TBA.
4. **Evaluation 3:** 19% (45 multiple-choice questions), covers the lectures 16 – 21
Date: **Tuesday, Apr 2 2019**, 10:30 – 11:25 AM
Location: TBA.

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.

Students with **valid excuses (see below)** to miss **ONLY ONE** of the three evaluations will be able to write a “Deferred Exam” to make up the missed exam on **April 4** (during lecture time and location).

Students with valid excuses who miss **more than one evaluation** will have to write a CUMULATIVE exam in May 2019 that covers all lectures and not only those reflecting the evaluations they missed. To be able to write the missed evaluations in May, 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 to the Kinesiology office (341 Bethune) or to the course director **before the deadline on Tuesday April 9, 2019 at 1 pm**. The exact date, time and location of the exam will be announced in early May 2019. Students who have been granted deferred standing and do not complete the make-up 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 the course director or the Kine Office (341 Bethune) 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 12:00 PM, 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.**
- **No audio or video recording of the lectures will be provided.** However, students are welcome to use their own recording devices to record the lecture.

LECTURE OVERVIEW

	TOPICS COVERED	LECT	DATE
WEEK 1	Course Business / General Introduction to Immunity	1	January 3
WEEK 2	Pathogens / Phases of the Immune Response	2	January 8
	Cells of the Immune System	3	January 10
WEEK 3	Tissues of the Immune System	4	January 15
	Innate Immune System – How to Recognize a Microbe	5	January 17
WEEK 4	Innate Immune System – Inflammation	6	January 22
	Innate Immune System – Complement Activation	7	January 24
EVALUATION 1	Location: TBA; Time: 11:30 – 12:45 PM; covers lectures 1-7		January 29
WEEK 5	Antibody Structure & Generation of Antibody Diversity	8	January 31
WEEK 6	Affinity Maturation of Antibodies & Isotype Switching	9	February 5
	B Cell Development	10	February 7
WEEK 7	<i>Reading Week – No Lectures</i>		February 12
			February 14
WEEK 8	T Cell Receptor & Diversity / Antigen Presentation	11	February 19
	The MHC Complex: MHC-I and MHC-II T Cell Development	12	February 21
WEEK 9	T Cell Development	13	February 26
	Activation of T Cells	14	February 28
WEEK 10	TCR Signaling & T Cell-Dependent Immune Responses	15	March 5
EVALUATION 2	Location: TBA; Time: 11:30 – 12:50 PM; covers lectures 8-15		March 7
WEEK 11	B Cell Signaling & B Cell Effectors	16	March 12
	Humoral Immunity	17	March 14
WEEK 12	Cell Mediated Immunity	18	March 19
	Immunological Memory and Vaccination	19	March 21
WEEK 13	Disorders of the Immune Response: Hypersensitivity & Autoimmunity	20	March 26
	Cancer and Its Interactions with the Immune System	21	March 28
EVALUATION 3	Location: TBA; Time: 11:30 – 12:25 PM; covers lectures 16-21		April 2
DEFERRED EXAM	Location: ACW 005; Time: Varies / Same material and time as the missed evaluation		April 4

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

<http://secretariat.info.yorku.ca/files/CourseInformationForStudentsAugust2012.pdf>

- 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, Dr. Abdul-Sater will work with CDS to ensure all reasonable accommodations are met.