Biol 4011 FA – Fundamentals of Immunology

Time and Place: 11:30 am to 1:00 pm, Tuesdays and Thursdays at ATAC 1007

Course Instructor: Ingeborg Zehbe, PhD, Research Chair (email: izehbe@lakeheadu.ca)

LU Office: CB 4018; Office hours: Thursdays, 3—4 pm; our group's website: www.zehbelab.weebly.com

Graduate Assistant: Mehran Masoom, MSc Candidate; please direct inquiries to mlmasoom@lakeheadu.ca; MM will be present during all lectures & seminars

Textbook: Janeway, Immunobiology (9th edition, 2016, Garland Science). PowerPoint presentations will be provided after each class

Date & Time	**Lecturer / Presenter**	**Topic**
Sept. 4/6	Dr. Ingeborg Zehbe	Course Introduction: marking scheme, assignments & Overview of immunology [Ch.1]
Sept. 11/13	Dr. Ingeborg Zehbe	The innate immune system: First lines of defence [Ch. 2]
Sept. 18/20	Dr. Ingeborg Zehbe	Assignment 1: Immunology Methods: Pre-seminar & Quiz
Sept. 25/27	Dr. Ingeborg Zehbe	Induction of innate immunity [Ch. 3]
Oct. 2/4	Robert Jackson & [PhD Candidate] & Mehran Masoom [MSc Candidate]	Special guest lectures: **Evolution of immunology & Global immune globulin structure and antibodies**
Oct. 9/11	***Reading week***	***N/A***
Oct. 16/18	**Pre- Mid-term Exam Q & A Session & Mid-term Exam**	**Material from first half of the course** (exclusive of what was covered by assignment 1)
Oct. 23/25	Dr. Ingeborg Zehbe	Human leukocyte antigen (HLA): B and T lymphocyte development & receptors [Chs 6, 8]
Oct. 30/Nov.1	Dr. Ingeborg Zehbe & Mehran Masoom	T cell-mediated immunity & the humoral immune response [Chs 9, 10]
Nov. 6/8	Dr. Ingeborg Zehbe & Mehran Masoom*	Integrated dynamics of innate and adaptive immunity & the mucosal immune system [Chs 11, 12]
Nov. 13/15	Dr. Ingeborg Zehbe & Mehran Masoom* & Robert Jackson	Assignment 2: Journal Club: Pre-seminar & Journal Article Discussion
Nov. 20/22	Dr. Ingeborg Zehbe & Mehran Masoom*	Immune tolerance, immune deficiency and autoimmunity & Debate on an agreed topic
Nov. 29	Dr. Ingeborg Zehbe & Mehran Masoom	Question time for Final Exam
Dec. 6	**Final Exam**	**Material from second half of the course** (exclusive of what was covered by assignment 2)

*MM to deliver lectures on Nov. 6, 13 and 22, 2018 as partial fulfilment for Advanced Immunology (special topics course)

Course rationale

Focus on fundamental principles of basic immunology from first engagement of innate immunity to the generation of the adaptive immune response with strong focus on vertebrates (humans). No previous knowledge in immunology is necessary. Some insight in basic genetics and signalling pathways with their receptors is necessary.

Course objective

Obtain knowledge of immunological principles related to:

- Cell surface molecules and receptors on cells of the immune system
- How immune cells develop and acquire the ability to recognize antigens
- How they interact to defend the organism against microbes
- How they malfunction in autoimmunity & immunodeficiency

Lecture Structure

During the semester, lectures will be structured as formal lectures, preparatory seminars, lab tours, guest lectures, and group discussions.

Mark Breakdown

Mid-term exam	30%
Assignments (2)	30% (2 x 15%)
Final exam	40%

Assignments (A1 and A2)

Students will be given two assignments during the course. A1 – Immunology Methods, which will include a preparatory seminar followed by a wet lab demonstration of technology. Students will then write a short summary on an assigned method to be due the following week. A2 – Journal Club, which will include a preparatory seminar followed by moderated small-group journal article discussions.

Mid-term Exam

To be written in class and will be based off the material covered in the first half of the course.

Final Exam

To be written during the examination period and will be based off the material covered in the second half of the course.