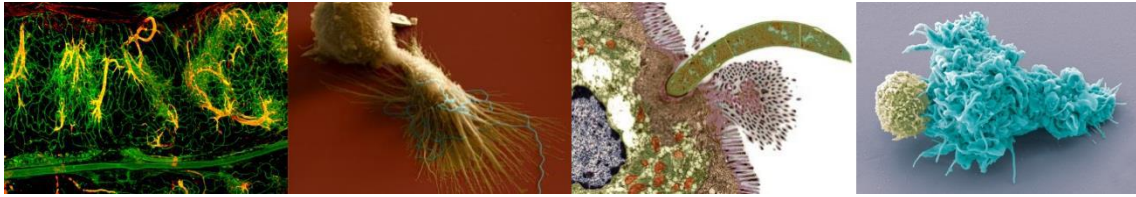


# BIOC39H – Immunology



[http://www.cell.com/cell\\_picture\\_show-immunology](http://www.cell.com/cell_picture_show-immunology)

## Winter 2020 Course Syllabus Dr. Bebhinn Treanor

*Immunology is a discipline that overlaps with many other biological disciplines including physiology, cell and molecular biology, genetics, biochemistry, and microbiology, parasitology, and virology. The concepts and methods of these disciplines are fundamental to the study of the immune system and as such, this course aims to provide students with an appreciation of the interdisciplinary relationship between these subjects. This course is designed to introduce the molecular and cellular basis of the immune system. Topics covered include cells and tissues of the innate and adaptive immune system, self versus non-self recognition, development of B and T cells, T cell activation and the role of effector cells, B cell activation and the structure and function of immunoglobulins, the role of complement, and antigen presentation. Special emphasis will be placed on the human immune response in health and disease and will cover topics including the immune response to infectious disease, inherited and acquired immunodeficiencies, autoimmunity, and tumour immunology.*

**Prerequisites:** [BIOB10H3 & BIOB11H3] or BIOB10Y3

**Exclusions:** IMM340H, IMM350H

**Instructor:** Bebhinn Treanor

Office Hours: Tuesday 3-5pm

Office Location: SW559

Email: [bioc39h@gmail.com](mailto:bioc39h@gmail.com)

**Lectures:** Friday 12-2 pm AA112

### Quercus Resources:

- ✓ outline of PowerPoint presentations will be uploaded to Quercus prior to lecture (~12-24 hours)
  - will NOT contain all content of lectures (only major points)
  - students should print and bring outlines to class to take additional notes

**Textbook:** “The Immune System” 4th Ed. Peter Parham.  
Published by Garland Science.

**Exams:** 2 Exams: Midterm exam: worth 40%  
-multiple choice, matching, diagrams, short answer  
Final exam worth 60%  
-multiple choice, matching, diagrams, short answer  
**\*\* The final exam is cumulative.**

**Optional Assignment\*:** Worth 18% of grade \*see additional details at end of syllabus and assignment posting

### Marking Scheme A (default)

Item	Value
Midterm exam	40%
Final Exam	60%

### Marking Scheme B (optional)

Item	Value
Midterm exam	35
Assignment	18
Final exam	47

**Course email:** [bioc39h@gmail.com](mailto:bioc39h@gmail.com)

### Course email policy:

- ✓ Your email message must include in the subject line the course identifier and a concise and clear statement of purpose (e.g. BIOC39H: appointment); the body should contain your full name and student number and all emails **MUST** be sent from your UTSC or UTORONTO email address. Emails from all other addresses will not be responded to.
- ✓ I will respond to legitimate email inquiries within 48 hours (in most instances) during the workweek (does NOT apply to weekends)
- ✓ Email should NOT be used as an alternative to office hours or as a mechanism to receive private tutorials.

### Missed Exams

**There will be a single make-up for the midterm exam.** Students who will be unable to attend the midterm for religious reasons must notify the instructor as soon as possible after the exam date is announced. Students who are unable to attend the midterm due to illness must notify the instructor by course email AND provide the UTSC Verification of Illness form

([https://www.utsc.utoronto.ca/~registrar/resources/pdf\\_general/UTSCmedicalcertificate.pdf](https://www.utsc.utoronto.ca/~registrar/resources/pdf_general/UTSCmedicalcertificate.pdf)) within 2 days of the term test to Jennifer Campbell

([jacampbell@utsc.utoronto.ca](mailto:jacampbell@utsc.utoronto.ca)), Course Coordinator in Biological Sciences. Please ensure that your physician has indicated a clear start date, end date, and visit date(s) on the form. Notes that are missing dates or have dates that do not correspond to the test missed will not be accepted. The date of the make-up exam will be announced on

Quercus and it is the SOLE RESPONSIBILITY of the affected student to ensure they know the date of the make-up exam. Students who miss a term test with no acceptable, documented excuse received within 2 working days of the test will receive zero.

\*\*\*Students who miss the final exam MUST petition the Registrar to write a deferred exam. Please refer to registrar's website for policy and consequences.

[http://www.utsc.utoronto.ca/~registrar/current\\_students/deferred\\_exams](http://www.utsc.utoronto.ca/~registrar/current_students/deferred_exams))

### **Accessibility Needs:**

Students with diverse learning styles and needs are welcome in this course. In particular, if you have a disability/health consideration that may require accommodations, please feel free to approach me and/or the *AccessAbility* Services office as soon as possible. I will work with you and *AccessAbility* Services to ensure you can achieve your learning goals in this course. Enquiries are confidential. The UTSC *AccessAbility* Services staff are located in S302 and are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations. Please ring (416) 287-7560 or email [ability@utsc.utoronto.ca](mailto:ability@utsc.utoronto.ca).

### **Academic Integrity:**

The University of Toronto is committed to the highest standards of academic integrity. "Academic integrity is fundamental to learning and scholarship at the University of Toronto. Participating honestly, respectfully, responsibly, and fairly in this academic community ensures that the U of T degree that you earn will be valued as a true indication of your individual academic achievement, and will continue to receive the respect and recognition it deserves." Consequently, the University treats cases of cheating and plagiarism very seriously. Please refer to The University of Toronto's Code of Behaviour on Academic Matters, which outlines what constitutes an academic offense (e.g. using or possessing unauthorized aids, including cell phones; misrepresenting your identity, looking at someone else's answers during an exam) and the policies and procedures for addressing academic offenses.

<http://www.governingcouncil.utoronto.ca/policies/behaveac.htm>

Please also consult: <http://www.utoronto.ca/academicintegrity/resourcesforstudents.html>

### **Optional Assignment**

- ✓ This is a group assignment – groups must consist of 3-5 people.
- ✓ You must OPT-IN to this assignment by signing up your group on Quercus by January 31<sup>th</sup> at 6pm, no exceptions.
- ✓ Once you OPT-IN you CANNOT later opt-out. If you opt-in and do not submit an assignment, you will receive a grade of zero.
- ✓ Assignment deadline March 27<sup>th</sup> (see assignment posting for additional deadlines)

- ✓ No extensions permitted. Late assignments will be penalized 10% per day. Assignments will not be accepted 5 days after the deadline.
- ✓ Electronic copies of the assignment must be submitted via Quercus.
- ✓ All questions related to the assignment should be directed to the course email: [bioc39h@gmail.com](mailto:bioc39h@gmail.com) with subject line: Assignment
- ✓ A more detailed description of the assignment will be discussed in class on January 17<sup>th</sup> and also posted on Quercus. Please refer to assignment posting for full details and deadlines.

**DRAFT BIOC39 Lecture Content and Assigned Readings (subject to change)**

LEC #	DATE	TOPIC	CHAPTER	relevant pg #
1	Jan.10	Introduction to Immunology	1.1 – 1.6	pg. 1 – 12
2	Jan. 17	Cells and Tissues of the Hematopoietic System	1.7 – 1.14	pg. 12 - 26
3	Jan. 24	Innate Immunity	2, 3.1 – 3.5, 3.7 – 3.13, 3.15, 3.17, 3.19 – 3.20	pg. 29 – 44, 47 – 55, 56 – 67, 68 – 70, 71 – 72, 73 – 76
4	Jan. 31	Antibody Structure & Generation of Ig diversity	4.1 – 4.9	pg. 81 – 96
5	Feb. 7	B cell development & B cell activation	6.1 – 6.8, 6.10 – 6.14 9.1 – 9.10	pg. 149 – 160, 161 – 168, 231 - 244
6	Feb. 14	Antibody effector functions & Midterm Review	9.11 – 9.24	pg. 245 – 264
7	Feb. 28	Antigen Recognition by T cells	5.1 – 5.22	pg. 113 – 142
8	Mar. 6	T cell development & T cell mediated immunity	7.1 – 7.13 8.1 – 8.20	pg. 177 – 196 pg. 199 – 228
9	Mar. 13	Mucosal Immunology and the Microbiome & Immunological Memory & Vaccination	10.1 – 10.16 11.1 – 11.28	pg. 267 – 291 pg. 295 – 326
10	Mar. 20	Immunity to Infection & Failures of the Body's Defenses	13.1 – 13.5, 13.8 – 13.9, 13.11 – 13.12, 13.15, 13.17 – 13.20, 13.22 – 13.25	pg. 365 – 372, 375 – 377, 379 – 381, 383 – 385, 388 – 392, 393 – 398
11	Mar. 27	Allergy & Autoimmunity	14.1 – 14.6, 14.8 – 14.10, 14.13, 14.15 - 14.21, 16.1 – 16.6 16.12 – 16.14, 16.16 – 16.19	pg. 401 – 407, 409 – 413, 416 – 418, 419 – 429, 474 – 484, 492 – 496, 498 - 505
12	Apr. 3	Transplantation Immunology & Tumour Immunology	15.1 – 15.26 17.1-17.12	pg. 434 – 468 pg. 509–530
	FINAL EXAM	Date and Time TBA		