

MGY440H1 F

Virus-Host Interactions

Fall 2025 Syllabus

Course Meetings

MGY440H1 F

Section	Day & Time	Delivery Mode & Location
LEC0101	Thursday, 2:00 PM - 5:00 PM	In Person: PB 255

Refer to ACORN for the most up-to-date information about the location of the course meetings.

Course Contacts

Instructor: Dr. Martha Brown

Email: martha.brown@utoronto.ca

Phone: 416-978-5853

Office Hours and Location: By appointment

Course Overview

Analysis of virus/host interactions at the molecular level with a view to understanding how viruses cause disease. Course material is based on recent research publications. Topics will be selected from two or three themes that may include virus entry, intracellular trafficking, activation of host cell signaling pathways in response to infection, assembly and release of progeny virus, viral and host determinants of tissue tropism within the host and virus transmission between hosts.

Analysis of virus/host interactions at the molecular level with a view to understanding how viruses cause disease. Course material is based on recent research publications. In 2025, the course material will encompass the following themes: (1) the importance of extracellular vesicles in virus infection, including their role in spread of viruses within hosts and between hosts, and in manipulation of host cell response to infection and (2) viruses as tools for treatment of disease.

Course Learning Outcomes

Classes are meant to be interactive and student presentations are an important part of the course. Each student, or pair of students, depending on class size, presents a published paper selected by the instructor for its relevance to the topic being discussed. It is expected that all students read the paper before class so that they can ask questions and we can have good class discussion.

Students learn to evaluate primary papers in terms of understanding the experimental approaches involved and analyzing the data.

By the end of the course, students should be able to pull together information from different published papers to write about certain topics (e.g. the importance of vesicles in spread of viruses), in such a way that the answers would make sense to a scientifically literate person who has not taken the course.

Prerequisites: BCH311H1/CSB349H1/ MGY311Y1; CSB351Y1/MGY378H1

Corequisites: None

Exclusions: None

Recommended Preparation: IMM340H1/IMM341H1, IMM350H1/IMM351H1

Credit Value: 0.5

Background Information:

Fields Virology (7th edition) 2023 -2024 – online version available through U of T library

Flint, SJ et al. Principles of Virology – Molecular Biology, Pathogenesis and Control of Animal Viruses.

4th edition (2015) In Gerstein library.

5th edition (2020) is accessible online at [Principles of Virology by S. Jane Flint | Open Library](#)

<https://viralzone.expasy.org> Viral Zone

www.microbe.tv Hot topics in microbiology (including virology), immunology, related topics

Missed Tests:

If you miss a test due to illness or some other problem, contact Dr. M. Brown by e-mail (martha.brown@utoronto.ca) within 7 days of the test, explaining the reason for missing the test. Normally, a make-up test will be arranged. You should also submit an Absence Declaration on Acorn as an official record of your absence (allowed once per term) **or** a Verification of Illness or Injury (VOI) form. The VOI form is available online (www.illnessverification.utoronto.ca) and should be signed by a licenced practitioner (Physician, Surgeon, Nurse Practitioner, Registered Psychologist or Dentist) at the time of illness/injury, not after the fact.

Marking Scheme

Assessment	Percent	Details	Due Date
Term test #1	10%		2025-10-02

Assessment	Percent	Details	Due Date
Term test #2	10%		2025-11-06
Oral presentation	30%	Each pair of students will give one oral presentation of a research paper selected by the instructor. There will be five student presentations, one in each of five classes. Each pair of students is scheduled to present on a specific date.	No Specific Date
In-Person Final Exam	50%		Final Exam Period

Late Assessment Submissions Policy

Not applicable

Course Schedule

Week	Description
Week 1 Sept. 4	Introduction/overview
Week 2 Sept.11	Importance of vesicles for virus transmission between hosts
Week 3 Sept.18	Guest Speaker - Dr. Bruce Seet (MB away)
Week 4 Sept.25	Extracellular vesicles for antibody-resistant transmission of SARS-CoV-2 <i>Student presentations possible</i>
Week 5 Oct. 2	Term test #1 Introduction to miRNAs
Week 6 Oct. 9	Proviral and antiviral effects of miRNAs <i>Student presentations possible</i>
Week 7 Oct. 16	Bacterial vesicles can protect the host against viral infections <i>Student presentations possible</i>

Week 8 Oct. 23	Infected cells can promote infection of neighbouring cells but protect distant cells
Week 9 Nov. 6	Term test #2 Introduction to host restriction factors
Week 10 Nov. 13	Host restriction factors <i>Student presentations possible</i>
Week 11 Nov. 20	Viruses as tools I <i>Student presentations possible</i>
Week 12 Nov 27	Viruses as tools II <i>Student presentations possible</i>

Policies & Statements

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If your absence is due to illness or injury, please submit a Verification of Illness or Injury Form
<<https://www.registrar.utoronto.ca/records-academics/verification-of-illness-or-injury/>>.

Accessibility

Accessibility Needs: The University of Toronto is committed to accessibility. If you require accommodations for a disability, or have any accessibility concerns about the course, the classroom or course materials, please contact Accessibility Services as soon as possible:
<<http://studentlife.utoronto.ca/as>>.

Academic Integrity

Academic honesty and responsibility are fundamental to good scholarship and learning. As members of this academic community, you have a responsibility to conduct yourself in accordance with these expectations. All academic work in this course must adhere to the Code of Behavior on Academic Matters.

<http://www.governingcouncil.utoronto.ca/AssetFactory.aspx?did=4871>

Potential offences include, but are not limited to:

On tests and exams:

- Using or possessing any unauthorized aid, including a cell phone.
- Looking at someone else's answers
- Letting someone else look at your answers.
- Submitting an altered test for re-grading.

Specific Medical Circumstances

If you become ill and it affects your ability to do your academic work, consult me right away. Normally, I will ask you for documentation in support of your specific medical circumstances. This documentation can be an Absence Declaration (via ACORN) or the University's Verification of Student Illness or Injury (VOI) form. The VOI indicates the impact and severity of the illness, while protecting your privacy about the details of the nature of the illness. If you cannot submit a VOI due to limits on terms of use, you can submit a different form (like a letter from a doctor), as long as it is an original document, and it contains the same information as the VOI (including dates, academic impact, practitioner's signature, phone and registration number). For more information on the VOI, please see <http://www.illnessverification.utoronto.ca>. For information on Absence Declaration Tool for A&S students, please see <https://www.artsci.utoronto.ca/absence>. If you get a concussion, break your hand, or suffer some other acute injury, you should register with Accessibility Services as soon as possible.

Course Materials, including lecture notes

Course materials are provided for the exclusive use of enrolled students. These materials should not be reposted, shared, put in the public domain, or otherwise distributed without the explicit permission of the instructor. These materials belong to your instructor, the University, and/or other sources depending on the specific facts of each situation and are protected by copyright. Students violating these policies will be subject to disciplinary actions under the Code of Student Conduct.