MGY440H1 F

Virus-Host Interactions

Fall 2024 Syllabus

## Course Meetings

### MGY440H1 F

| **Section** | **Day & Time** | **Delivery Mode & Location** |
| --- | --- | --- |
| **LEC0101** | Thursday, 2:00 PM - 5:00 PM | In Person: MS 2173 |

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](mailto: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. In 2024, the course material will encompass the following themes: (1) Transkingdom interactions (ie modulation of virus infection by commensal microbiota), (2) the importance of extracellular vesicles in virus infection, including their role in spread of viruses within hosts and between hosts, and in manipulation of innate host response to infection, (3) re-programming of host cell metabolism.

### 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 (6th edition) 2013 – 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.    I have a copy of the 5th edition (2020)

[https://viralzone.expasy.org](https://viralzone.expasy.org/)       Viral Zone

[www.microbe.tv](http://www.microbe.tv/)                          Hot topics in microbiology (including virology) with links to

  “This week in Microbiology” and “This week in Virology”

## Marking Scheme

| **Assessment** | **Percent** | **Details** | **Due Date** |
| --- | --- | --- | --- |
| **Term test #1** | 10% |  | 2024-10-03 |
| **Term test #2** | 10% |  | 2024-11-07 |
| **Oral presentation** | 30% | Each pair of students will give one oral presentation of a research paper selected by the instructor. There will be six student presentations, one in each of six 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. 5 | Introduction/overview |
| **Week 2**  Sept.12 | Importance of vesicles for virus transmission between hosts |
| **Week 3**  Sept.19 | miRNA promotes EV71 infection  Student presentations possible |
| **Week 4**  Sept.26 | Vesicles can be proviral or antiviral  Student presentations possible |
| **Week 5**  Oct. 3 | Term test #1  Importance of vesicles from bacteria |
| **Week 6**  Oct. 10 | Suppression of host antiviral response by vesicles from VZV-infected cells  Student presentations possible |
| **Week 7**  Oct. 17 | Infected cells can promote infection of neighbouring cells but protect distant cells |
| **Week 8**  Oct. 24 | Practical application – Vesicles for delivery of oncolytic viruses  Student presentations possible |
| **Week 9**  Nov. 7 | Term test #2  Introduction to viruses and metabolism |
| **Week 10**  Nov. 14 | Metabolic re-programming of the infected cell  Student presentations possible |
| **Week 11**  Nov. 21 | More about viruses and metabolism  Student presentations possible |
| **Week 12**  Nov 28 | Antivirals and metabolism  Student presentations possible |

## Policies & Statements

### Missed Tests

Missed Tests: If you miss a test due to illness, contact Dr. M. Brown by e-mail ([martha.brown@utoronto.ca](mailto:martha.brown@utoronto.ca)) within 7 days of the test. Normally, a make-up test will be arranged. You should also submit an Absence Declaration on Acorn (permitted once per term).  It is not necessary to submit a Verification of Illness or Injury form unless you have exceeded one Absence Declaration for the term.

### 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. • Copying material word-for-word from a source (including lecture and study group notes) and not placing the words within quotation marks. • Making up sources. • Including references to sources that you did not use. • Obtaining or providing unauthorized assistance including: • “crowdsourcing” ideas and text via a Facebook/online study group without attribution

### 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](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.

### Accommodation for Personal Reasons

There may be times when you are unable to complete course work on time due to non-medical reasons. If you have concerns, speak to me or to an advisor in your College Registrar's office; they can help you to decide if you want to request an extension or other forms of academic consideration. They may be able to email your instructors directly to provide a College Registrar's letter of support and connect you with other helpful resources on campus.

### 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.