

## Microbiology and Immunology MicroImm 4200B – Molecular Virology

Course outline for Winter 2021



Although this academic year might be different, Western University is committed to a **thriving campus**. We encourage you to check out the [Digital Student Experience](#) website to manage your academics and well-being. Additionally, the following link provides available resources to support students on and off campus: <https://www.uwo.ca/health/>.

### 1. A personal note from Drs. Dekaban and Mymryk

COVID-19 has created an unprecedented challenge to providing university education. As a result, we have decided to operate this course entirely online.

We realize that this loss of an in-person experience is not ideal. However, this should not impact the primary goals of this course – which is to provide the student with advanced knowledge in human and animal virology with an emphasis on mechanisms of disease pathogenesis.

We have made efforts to ensure that this course is as interactive as possible. Depending on scheduling, the instructors will provide synchronous (live video feed) lecture sessions. Although student presentation will be provided asynchronously, synchronous discussion forums will be held for each student presentation. To maintain flexibility, all instructor and student presentations will be offered in an asynchronous (recorded or available online) format.

**All discussion forums for student presentation are mandatory and live. Attendance will be taken.**

Students will work collaboratively in assigned groups of 3-4 to prepare a presentation, which will be made available asynchronously in advance of class discussion. Dedicated viewing time of 50 minutes will be allocated for each group presentation in the course schedule, followed by a synchronous group discussion. Students will attend the online discussion forum for each student group presentation. Participation marks will be assigned based on attendance and contribution to discussion. Note that you will need an internet connection and a laptop or computer to engage in these sessions. You will be expected to use your microphone and webcam during discussion sessions. Your webcam must be left on throughout the synchronous group discussion.

We understand that learning remotely creates additional stresses above those normal for university students, and that you may have additional responsibilities or stressors due to life changes brought about by COVID-19. As such, we have tried to make this course as flexible as possible to ensure that you can manage the workload alongside your other courses, responsibilities, and while taking care of your mental health.

**Availability:** We will maintain an “open door policy” throughout the term, meaning you can email us at any time to arrange a virtual meeting to discuss course materials and issues. Primary contacts will be your TAs. Dr. Mymryk ([jmymryk@uwo.ca](mailto:jmymryk@uwo.ca)) and Dr. Dekaban ([dekaban@uwo.ca](mailto:dekaban@uwo.ca)) can also be contacted by email. These meetings are private and remain confidential.

**Accommodations:** If you need accommodations beyond those offered above, please contact the Instructor and we will make alternative arrangements.

## 2. Technical Requirements:



Internet connection



Laptop or computer



Microphone



*Optional: Webcam*

## 3. Course Overview and Important Dates:



Delivery Mode*	Dates	Time
<b>Lectures:</b> All content will be recorded and available asynchronously.	Tuesdays or Thursdays	8:30 AM – 10:20 AM
<b>Student Presentation:</b> Asynchronous content (pre-recorded) with synchronous group discussion with instructors and TAs	Tuesdays or Thursdays	9:00 AM – 10:20 AM

\* Details about design and delivery of the course are listed below in Sections 7 and 8

### Winter Term Sessional Dates:

Classes Start	Reading Week	Classes End	Study day(s)	Exam Period
Jan 12	Feb 13 - 21	Apr 12	Apr 13	April 14 - 30

\* March 15, 2021: Last day to drop a second-term half course or full course without academic penalty

## 4. Contact Information



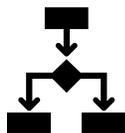
Course Coordinators	Contact Information
Dr. Joe Mymryk	Email: <a href="mailto:jmymryk@uwo.ca">jmymryk@uwo.ca</a> Virtual Student Hours: As required, book by email.
Dr. Greg Dekaban	Email: <a href="mailto:dekaban@uwo.ca">dekaban@uwo.ca</a> Virtual Student Hours: As required, book by email.

Instructor(s) or Teaching Assistant(s)	Contact Information
Dr. Marco Prado (Instructor)	<a href="mailto:mprado@robarts.ca">mprado@robarts.ca</a>
Mackenzie Dodge (Teaching Assistant)	via OWL messages
Mitchell Mumby (Teaching Assistant)	via OWL messages

## 5. Course Description and Design

This course focuses on animal and human viruses and their host-pathogen relationships including immune evasion strategies, mechanisms of host restriction, evolutionary relationships, disease pathogenesis and therapeutic applications of viral vectors. Lectures will introduce the students to current information, hypotheses, and working models relevant to the subject areas as listed in the outline.

Student participation and questions are encouraged at the end of each lecture or via the OWL forum.



**Prerequisites:** Biochemistry 2280A, Biology 2581B, and Microbiology and Immunology 3100A with a mark of at least 70%.

Mode	Dates	Time	Frequency
Virtual synchronous	Tues/Thurs	8:30-10:20	weekly

Asynchronous pre-work must be completed prior to the synchronous student presentation sessions.

Attendance at synchronous student presentation discussion sessions is required.

All course material will be posted to OWL: <http://owl.uwo.ca>. Any changes will be indicated on the OWL site and discussed with the class.

If students need assistance, they can seek support on the [OWL Help page](#). Alternatively, they can contact the [Western Technology Services Helpdesk](#). They can be contacted by phone at 519-661-3800 or ext. 83800.

[Google Chrome](#) or [Mozilla Firefox](#) are the preferred browsers to optimally use OWL; update your browsers frequently. Students interested in evaluating their internet speed, please click [here](#).

## 6. Student Expectations

- complete and submit group presentation assignment by the required date
- participate respectfully in small group presentation preparation
- view all student presentation material prior to the discussion sessions
- attend and actively participate in all group discussions
- ask questions on the owl forum when you require clarification
- communicate professionally when interacting with others
- carefully consider feedback before questions any grade
- complete assigned tasks on time

## 7. Course Expectations

### Learning Outcomes

This course is primarily designed to provide the student with advanced knowledge in human and animal virology with an emphasis on mechanisms of disease pathogenesis. This includes molecular mechanisms involved in viral replication and host-pathogen relationships, as well the molecular basis for prions and prion-associated diseases. In addition, recent topics related to human and animal virology from the current literature or reputable sources from the internet will

be covered where appropriate. Relevant reference to bacterial and plant virology may be made if applicable.

Upon successful completion of this course, students will be able to:

- appreciate the breadth of viral diversity
- acquire an understanding of the molecular basis of the replicative cycles of selected viruses, including viral reprogramming of cellular growth and gene expression
- understand the profound impact of viruses on human health
- have an advanced understanding of cellular antiviral responses
- understand the role of anti-viral therapies and vaccination
- develop an understanding of molecular approaches to study viruses

**Faculty Lectures:** While the lecturers will provide their Powerpoint slides to the students a day or two before the class takes place, the information on the Powerpoint slides should not be considered as all that you should know for the examinations. The Powerpoint slide content serves as the basis or background upon which the lecturer may speak on. Therefore, you are required to know information in the Powerpoint slides, as well as the verbal content presented in class. If you do not understand some aspect of a given lecture, the course TAs are more than happy to help you. All lectures will also be recorded and posted on OWL prior to the scheduled normal class time.

**Student Presentations:** Attendance at student presentation group discussion sessions is **MANDATORY** and will be recorded. Presentations consist of participation in a group oral presentation (3-4 students per group) on a current topic of interest to and/or related to animal virology. Each student presentation topic will be the focus of an ~30 minute group discussion centered around the assigned topic. Group presentations will be ~50 minutes in length and will be pre-recorded. Presentations are due by noon, 1 day prior to their assigned presentation slot. *Each student group must also prepare a single 2-page, single spaced handout summarizing the information given in the presentation.* All references used to gather information for the presentation must be provided on an additional page attached to the handout (i.e. page 3). References must be cited in-text, using any suitable format. Each group will also provide 6 multiple choice answer questions related to key concepts/learning objectives from their presentation suitable for inclusion in the final exam. The answers to these questions must be present in the handout. This handout must be uploaded to the provided Turnitin link in the 'Assignments' tab on OWL no later than noon, one day preceding the corresponding presentation so that it can be posted on OWL for the class prior to the assigned presentation slot. Handouts demonstrating clear plagiarism and/or lacking proper scientific referencing will receive a mark of 0 for the presentation. Presentations will be evaluated based on the handout, presentation content, presentation skill, and ability to answer questions posed by the fellow students and attending faculty.

We expect each group to present current developments on molecular virological aspects, mechanisms of disease pathogenesis, and therapeutic applications relevant to your assigned topic. This includes presenting any information new and relevant to the following: viral life cycle, clinical presentation, pathogenesis and diagnosis, epidemiology, molecular epidemiology and evolutionary molecular biology and genetics, treatment and prevention. Thus, the entire scope of the topic chosen does not have to be covered. Be selective and limit the scope of your presentation to material that can be covered in depth in the time allotted. The portion covered and a rationale for choosing this portion should be presented at the beginning of the presentation.

**Students are encouraged to begin researching their topic early.** For references, students can begin by searching for pertinent recent review articles on their assigned topic using PubMed. Recent review articles are useful to find references for specific current papers. The internet can also be used to gather information related to the impact of the presentation topic

relevant to the general public. However, it should be noted that students are expected to go beyond the use of review articles by presenting data from current commentaries and papers on virology in journals (typically 2014 or later) such as *Science*, *Nature*, *Cell*, *J. Virology*, and *Virology*. Students can also use social media where appropriate if it provides specific context to aspects of their presentation. This must be properly cited as well. However, scientific literature sources, as indicated above, should be your first and primary source of information.

## 8. Course Content and Schedule



A Schedule with all lecture and student presentation topics, assignment due dates, and other scheduling information can be found as a link in the “Syllabus” tab on the MicroImm 4200B OWL site.

## 9. Online Participation and Engagement



- Students are expected to participate and engage with content and discussion as much as possible.
- Students can also participate by interacting in the forums with their peers and instructors.

## 10. Communication:



- Students should check the OWL site every 24 – 48 hours.
- Emails will be monitored daily; students will receive a response in 24 – 48 hours.
- Zoom will be used for all synchronous sessions.
- This course will use the OWL forum for discussions.
- Students should post all course-related content on the discussion forum so that everyone can access answers to questions.
- The discussion forums will be monitored daily by instructors or teaching assistants.

## 11. How to Be Successful in this Class:

Students enrolled in this class should understand the level of autonomy and self-discipline required to be successful.



1. Invest in a planner or application to keep track of your courses. Populate all your deadlines at the start of the term and schedule time at the start of each week to get organized and manage your time.
2. Make it a daily habit to log onto OWL to ensure you have seen everything posted to help you succeed in this class.
3. Follow weekly checklists created on OWL or create your own to help you stay on track.
4. Take notes as you go through the lesson material. Treat this course as you would a face-to-face course. Keeping handwritten notes or even notes on a regular Word document will help you learn more effectively than just reading or watching the videos.
5. Connect with others. Try forming an online study group and try meeting on a weekly basis for study and peer support.
6. Do not be afraid to ask questions. If you are struggling with a topic, check the online discussion boards or contact your instructor(s) and or teaching assistant(s).
7. Reward yourself for successes. It seems easier to motivate ourselves knowing that there is something waiting for us at the end of the task.

**12. Evaluations**

**Below is the evaluation breakdown for the course. Any deviations will be communicated.**

Component	Material Tested	% of Final Grade	Date
Midterm	Dr. Mymryk's lectures and Dr. Prado's lectures	37.5%	Thurs Feb 11th <i>(in class)</i>
Final Exam	Dr. Dekaban's lectures and all 11 student presentations	37.5%	<b>TBA</b> , held during the final exam period
Student Presentation <sup>1</sup>		25%	

**<sup>1</sup> Student Presentation Mark Breakdown:**

- Handout (including references) 5%
- Content (including molecular component) 5%
- Presentation skills 5%
- Ability to answer questions 5%
- Participation\* 5%

\* Participation mark is based on 1) attendance at **all** student presentations, and 2) asking questions to the presenting students. Each student's attendance and participation in questions will be recorded. To obtain full participation marks, you should ask multiple questions over the course of all the student presentations. The goal is to stimulate discussion and learn as a group. Questions that promote discussion will count more than "token" questions asked simply to achieve a participation mark.

**Midterm and Final Exam Format:**

The midterm and final examination are not cumulative with respect to lecture content. However, an understanding of the methodologies used to study viruses and prions presented in the first lecture and all subsequent lectures will be on both tests, as these subjects are relevant to all viruses. The final examination will be time limited to 2 hours. It will include all lecture material given after the midterm, plus questions based on the handouts from all student presentations. Each lecturer will have a separate exam section and the type of questions may vary with the lecturer. However, all lecturers will mainly pose questions requiring essay and/or short answer style answers.

Although there may be some multiple-choice style questions, they will comprise only a minor part of each exam. Any multiple-choice exam questions will be presented in a linear fashion, such that once answered, you will not be able to go back and alter your choice. Students are expected to answer questions using proper grammar and format. Marks will be deducted for improper grammar and formatting, as well as essay questions answered in point form.

Short answer and essay exam questions will be subject to Turnitin analysis prior to marking. If plagiarism is detected that question will get a zero mark.

Students are expected to be able to integrate the information provided in multiple lectures. Thus, questions may cross one or more lectures by an individual instructor or by different instructors. Students should study with this in mind and be prepared to compare and contrast different viruses and their host- pathogen relationships.

- All assignments are due at noon, EST unless otherwise specified.
- Written assignments will be submitted to Turnitin (statement in policies below).
- Students will have unlimited submissions to Turnitin.
- After an assessment is returned, students should wait 24 hours to digest feedback before contacting their evaluator; to ensure a timely response, reach out within 7 days

Click [here](#) for a detailed and comprehensive set of policies and regulations concerning examinations and grading. The table below outlines the University-wide grade descriptors.



A+	90-100	One could scarcely expect better from a student at this level
A	80-89	Superior work which is clearly above average
B	70-79	Good work, meeting all requirements, and eminently satisfactory
C	60-69	Competent work, meeting requirements
D	50-59	Fair work, minimally acceptable
F	below 50	Fail

### **Course policy on Late and Make-up Evaluations:**

Late submissions will not be accepted for any reason for the student group presentation assignment. If a member of a group cannot present his or her material for the presentation, their particular portion can be rescheduled in accordance with the recommendation of the counsellor, the student and instructor. The remaining students in the group will present their portions of the presentation as expect and will be marked on their own merits.

Self-reported absences will only be accepted for the student presentation discussion session. These will be due 72-hours after self-reporting (*i.e. 24-hours after expiration of the self-report*).

Medical or non-medical absences approved by an Academic Counsellor:

- rescheduling of work will occur in accordance with the recommendation of the counsellor, plus the student and instructor's availability.

Penalties if work is missed/late with no approved reason:

- *Handouts and questions:* Late penalty is 25% per day. It will not be accepted after 2-days late and the group will get a mark of zero.

### **13. Student (Office) Hours:**



Student hours will be held remotely using Zoom, with these meetings booked via email.

### **14. Resources**



- All lecture slides, videos and student presentation materials will be posted in OWL.
- All materials are provided free-of-cost. There is no textbook to purchase for this course.

## 15. Professionalism & Privacy:

Western students are expected to follow the [Student Code of Conduct](#). Additionally, the following expectations and professional conduct apply to this course:



- Students are expected to follow online etiquette expectations provided on OWL
- All course materials created by the instructor(s) are copyrighted and cannot be sold/shared
- Recordings are not permitted (audio or video) without explicit permission
- Permitted recordings are not to be distributed
- Students will be expected to take an academic integrity pledge before the first lecture
- All recorded sessions will remain within the course site or unlisted if streamed

## 16. Western Academic Policies and Statements

### Absence from Course Commitments

#### [Policy on Academic Consideration for Student Absences](#)

In the interest of the health and safety of students and health care providers, you are no longer required to seek a medical note for absences this term. If you are unable to meet a course requirement due to illness you should use the [Illness Reporting Tool](#). This tool takes the place of the need to submit a medical note and the Self-Reported Absence System formally used by undergraduate students.

You are required to self-report every day that you are ill and unable to complete course commitments. Details about when you should submit missed work, the format of the missed work can be found in the Section 7. Evaluation above. Students should communicate promptly with their instructor and use this tool with integrity.

### Accommodation for Religious Holidays

The policy on Accommodation for Religious Holidays can be viewed [here](#).

### Special Examinations

A Special Examination is any examination other than the regular examination, and it may be offered only with the permission of the Dean of the Faculty in which the student is registered, in consultation with the instructor and Department Chair. Permission to write a Special Examination may be given on the basis of compassionate or medical grounds with appropriate supporting documents. To provide an opportunity for students to recover from the circumstances resulting in a Special Examination, the University has implemented Special Examinations dates. These dates as well as other important information about examinations and academic standing can be found [here](#).

### Academic Offenses

“Scholastic offences are taken seriously, and students are directed [here](#) to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence.

### Accessibility Statement

Please contact the course instructor if you require material in an alternate format or if you require any other arrangements to make this course more accessible to you. You may also wish to contact Accessible Education (AE) at 661-2111 x 82147 for any specific question regarding an accommodation or review [The policy on Accommodation for Students with Disabilities](#).

### Correspondence Statement

The centrally administered **e-mail account** provided to students will be considered the individual’s official university e-mail address. It is the responsibility of the account holder to ensure that e-mail

received from the University at his/her official university address is attended to in a timely manner. You can read about the privacy and security of the UWO email accounts [here](#).

#### **Turnitin and other similarity review software**

All assignments will be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. Students will be able to view their results before the final submission. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between Western University and [Turnitin.com](#).

### **17. BMSUE Academic Policies and Statements**

#### **Copyright and Audio/Video Recording Statement**

Course material produced by faculty is copyrighted and to reproduce this material for any purposes other than your own educational use contravenes Canadian Copyright Laws. You must always ask permission to record another individual and you should never share or distribute recordings.

#### **Rounding of Marks Statement**

Across the Basic Medical Sciences Undergraduate Education programs, we strive to maintain high standards that reflect the effort that both students and faculty put into the teaching and learning experience during this course. All students will be treated equally and evaluated based only on their actual achievement. **Final grades** on this course, irrespective of the number of decimal places used in marking individual assignments and tests, will be calculated to one decimal place and rounded to the nearest integer, e.g., 74.4 becomes 74, and 74.5 becomes 75. Marks WILL NOT be bumped to the next grade or GPA, e.g. a 79 will NOT be bumped up to an 80, an 84 WILL NOT be bumped up to an 85, etc. The mark attained is the mark you achieved, and the mark assigned; requests for mark “bumping” will be denied.

### **18. Support Services**

The following links provide information about support services at Western University.

[Academic Counselling \(Science and Basic Medical Sciences\)](#)

[Appeal Procedures](#)

[Registrarial Services](#)

[Student Development Services](#)

[Student Health Services](#)