

BIOL 472/41: Virology
BIOL 685/41: Advanced Topics in Microbiology/Virology
3 credits
Summer 2021 (Mon /Wed 18:30-21:00 pm)
Location: Online

Instructor: Dr. Andrew Wieczorek
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Office hours: Make an appointment via email

Prerequisites: BIOL 226, BIOL367

COURSE DESCRIPTION

The life cycles of viruses are discussed with emphasis on the molecular basis of their entry into, reproduction in, and exit from host cells. These life cycles are related to the pathogenicity of different groups of viruses to provide an understanding of the variety of viral diseases. Lectures only.

COURSE OBJECTIVES

This course is designed to provide students with a background in molecular mechanisms governing virus pathogenicity in humans. The two main learning objectives of this course are: the development of an understanding of mechanisms pertaining to viral entry, replication and exit from host cells, and the ability to research on topics within the realm of virology with a goal of demonstrating an ability to discover, assimilate, and organize such information into communicable forms such as oral presentations and literature reviews.

TOPICS COVERED

1. Introduction to Virology
2. Virus Structure and Assembly
3. Virus Classification
4. Virus entry
5. Positive-strand RNA viruses
 - i. Picornaviruses
 - ii. Flaviviruses
 - iii. Coronaviruses
6. Negative strand & double-strand RNA viruses
 - i. Filoviruses
 - ii. Influenza viruses
 - iii. Reoviruses
6. DNA viruses
 - i. Polyomaviruses
 - ii. Papillomaviruses
 - iii. Adenoviruses
 - iv. Herpesviruses (TBD)
7. Retroviruses
 - i. HIV
 - ii. Hepadnaviruses (TBD)
8. Antiviral agents and virus vectors
 - i. Antiviral Vaccines
 - ii. Viral vectors (TBD)

COURSE RESOURCES

Course notes, lecture pdf's and recorded discussions will be made available at the start of each Monday session. You should use this time to read through the documents and watch the recorded discussions. Be active and take notes as you progress through the material. After noting any questions that you have on the material, we will hold a live ZOOM meeting at the start of the Wednesday session during which students can ask questions on material pertaining to the content from that week. Original research articles and literature reviews will be made available to students as well. In certain semesters, Guest lectures will be a part of the course as well. Access to internet during scheduled assessments is obligatory. Students are expected to watch the presentations, take notes, write down questions, and participate in a discussion and question & answer period. Having your video on is strongly encouraged however is not mandatory.

Text from which figures are derived (unless otherwise specified): Custom Edition of Fundamentals of Molecular Virology, Second Edition by Nicholas Acheson, Wiley publishing. (available on reserve at the Library)

Attendance at all lectures is **very strongly** encouraged, and students are expected to **participate fully** in all activities. Students who miss in-class evaluations or assignments will not be able to receive corresponding grades for such activities and assignments. Not all assignments will be announced ahead of time. Please inform the instructor **at the beginning of the term** of any difficulties, physical or learning disabilities that you may have or as soon as possible in the case of an injury, so that you can be accommodated.

A discussion forum will be made available for students to post questions and answers and will remain open for the duration of the semester.

WEEKLY SCHEDULE:

Lectures

During the Monday lecture sessions, the entire week content will be posted and accompanied by a pre-recorded presentation by the instructor.

Wednesday lecture sessions will be dedicated to assessments, question / answer period discussions via ZOOM.

GRADING

1. Midterm June 2 (tentative date, subject to change) 20%
 2. Student Presentations 15%
 3. Academic Literature Review 15%
 4. Mini-assignments, quizzes, in-class assignments, 10%
 5. Final exam (cumulative) 40%
- Total: 100%**

Grading scheme: A+=90-; A=85-89; A-=80-84; B+=77-79; B=74-76; B-=70-73; C+=67-69; C=64-66; C-=60-63; D+=57-59; D=54-56; D-=50-53; F=<50

The mid-term test and the final exam will comprise multiple choice answer questions and questions requiring short essay type answers.

Student Presentations

Each group of students will give a 20 minute presentation on a single original research article. Presentations should include: the background behind the research, important figures demonstrating findings, and a conclusion. 5 minutes will be reserved for questions from peers.

Student Academic Literature Review

Each student will be required to pick a topic of their choosing within the realm of virology and write a 5-page double spaced (8 pages for BIOL685 students) literature review on the topic. A minimum of 4 peer-reviewed scientific articles should be used as the basis for the information discussed in the review.

DISCLAIMER (UNIVERSITY)

In the event of extraordinary circumstances beyond the University's control, the content and/or evaluation scheme in this course is subject to change.

PLAGIARISM

The most common offense under the Academic Code of Conduct is plagiarism which the Code defines as **"the presentation of the work of another person as one's own or without proper acknowledgement"** (Article 16a). This could be material copied word for word from books, journals, internet sites, professor's course notes, etc. It could be material that is paraphrased but closely resembles the original source. It could be the work of a fellow student, for example, an answer on a quiz, data for a lab report, a paper or assignment completed by another student. It might be a paper purchased through one of the many available sources. Plagiarism does not refer to words alone - it can also refer to copying images, graphs, tables, and ideas. "Presentation" is not limited to written work. It also includes oral presentations, computer assignments and artistic works. If you translate the work of another person into French or English and do not cite the source, this is also plagiarism. If you cite your own work without the correct citation, this too is plagiarism.

Do not copy, paraphrase or translate anything from anywhere without saying where you obtained it! (Source: *The Academic Integrity Website: <http://provost.concordia.ca/academicintegrity/plagiarism/>*) This information is an adaptation of the material produced by the Code Administrator of the Faculty of Arts and Science at Concordia University Source: The Academic Integrity Website: <http://provost.concordia.ca/academicintegrity/plagiarism/>

STUDENT RESOURCES

<http://www.concordia.ca/info/currentstudents/studentsservices/>

- **Concordia Counselling and Development:** <http://cdev.concordia.ca/> (offers career services, psychological services, student learning services, etc.)
- **The Concordia Library Citation and Style Guides:** <http://library.concordia.ca/help/howto/citations.html>
- **Advocacy and Support Services** <http://supportservices.concordia.ca/>
- **Student Transition Centre** <http://stc.concordia.ca/>
- **New Student Program** <http://newstudent.concordia.ca/>
- **Access Centre for Students with Disabilities** <http://supportservices.concordia.ca/disabilities/>
- **Student Success Centre** <http://studentsuccess.concordia.ca/>
- **The Academic Integrity Website** <http://provost.concordia.ca/academicintegrity/>
- **Financial Aid & Awards** <http://web2.concordia.ca/financialaid/>
- **Health Services** <http://www-health.concordia.ca/>