

Department of Biology Course Outline

SC/BIOL 3155 3.00
Virology Winter 2016

Course Description

An in-depth examination of cellular, molecular and structural aspects of virology. Molecular processes and concepts are emphasized using examples from current research literature. Virus-host interactions are investigated in various systems. Three lecture hours per week. One term. Three credits.

Prerequisites

SC/BIOL 2020 3.00, SC/BIOL 2021 3.00

Course Instructors and Contact Information

Course Director: Dr. Motti Anafi: Office: Room 108, Farquharson Building
moanafi@yorku.ca

Teaching Assistants:
Michelle Prioriello: mich4@yorku.ca
Shailee Jani: shaileej@yorku.ca

Office hours:
Email to set up an appointment

Schedule

Course Schedule and Location

The course will be offered on Tuesdays and Thursdays both at 5:30pm-7:00pm in VC.

Evaluation

Mid-Term Exam 1	25%
Date: Thursday, Feb 11, 2016 @ 5:30pm	
Location: TBA	
Mid-Term Exam 2	25%
Date: Thursday, March 17, 2016 @ 5:30pm	
Location: TBA	
Final Exam	50%
Date and place: will be published by the registrar office	

Important Dates

Classes start: Jan 3

Last date to add a course **without permission** of instructor: Jan. 17

Last date to add a course **with permission** of instructor: Jan. 29

Last date to drop course without receiving a grade: March 4

Winter Reading Week: Feb. 13-19

Winter classes end: April 4

Winter examinations: April 6-20

NOTE: for additional important dates such as holidays, refer to the "Important Dates" section of the Registrar's Website at <http://www.yorku.ca/yorkweb/cs.htm>

Resources

Recommended Readings:

- 1) Principles of Virology, Bundle (available at YorkU bookstore. To purchase an eBook version you can do so via redshelf.com)

Print ISBN : 9781555819514

Authors: Jane Flint, Vincent R. Racaniello, Glenn F. Rall, Anna Marie Skalka

Check: <http://www.asmscience.org/content/book/10.1128/9781555819521>



Go to <http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=Books>

- 2) **Medical Microbiology.** 4th edition Baron, Samuel, editor.

- 3) **Retroviruses.** Coffin, John M.; Hughes, Stephen H.; Varmus, Harold E.

<http://www.cdc.gov/>

<http://viralzone.expasy.org/>

<http://www.microbiologybook.org/book/virol-sta.htm>

Learning Outcomes

The main objective of the Virology course is to develop the understanding of the basic molecular and cellular concepts and principles related to viral infections, and its medical application to treatment and prevention.

Course Content

Course Outline (+optional reading, resources)

Part 1: Introduction

Tips on studying for the course

Emerging infectious diseases

Flint Vol II Chps 10 and 11

http://www.learner.org/channel/courses/biology/support/5_infect.pdf

<http://emergency.cdc.gov/bioterrorism/>

Part 2: Structure/Function of Viruses

Principles in virology

Flint Vol I Chp 1

<http://www.microbiologybook.org/mhunt/intro-vir.htm>

DNA virus replication strategies

Flint Vol I Chp 9

<http://www.microbiologybook.org/mhunt/dna1.htm>

<http://www.microbiologybook.org/lecture/chemo.htm>

RNA virus replication strategies

Flint Vol I Chps 6 and 7

<http://www.microbiologybook.org/mhunt/rna-ho.htm>

Structure of viruses

Flint Vol I Chp 4

<http://www.microbiologybook.org/mhunt/intro-vir.htm>

Lytic replication cycle

Flint Vol I Chps 5 and 13

<http://www.microbiologybook.org/mhunt/replicat.htm>

Part 3: Antiviral defense mechanisms

Basic concepts in immunology

Flint Vol II Chps 3 and 4

<http://www.microbiologybook.org/ghaffar/mhc2000.htm>

Interferon

Flint Vol II Chp 3

<http://www.microbiologybook.org/mayer/vir-host2000.htm>

Vaccination against viruses

Flint Vol II Chp 8

<http://www.microbiologybook.org/lecture/vaccines.htm>

<http://www.microbiologybook.org/ghaffar/immunization-ver2.htm>

Part 4: Viral Diseases

Sexually transmitted infections

Human Immunodeficiency Virus (HIV)

Flint Vol II Chp 7

<http://www.microbiologybook.org/lecture/hiv2000.htm>

Infections of the respiratory system

SARS

Flint search index

<http://www.microbiologybook.org/virol/coronaviruses.htm>

Influenza

http://www.cdc.gov/flu/?s_cid=internal6

<http://www.who.int/csr/disease/influenza/en/>

<http://www.microbiologybook.org/mhunt/flu.htm>

<http://www.microbiologybook.org/mhunt/genet.htm>

Oncogenic viruses

Flint Vol II Chp 6

Retroviruses and the discovery of oncogenes

<http://www.ncbi.nlm.nih.gov/books/NBK19409/>

<http://www.microbiologybook.org/lecture/retro.htm>

Oncogenes, tumor suppressor genes and oncogenic viruses

Flint Vol II Chp 6

<http://www.microbiologybook.org/lecture/retro.htm>

<http://www.cancer.org/acs/groups/cid/documents/webcontent/002550-pdf.pdf>

Oncogenic tyrosine kinases

Nature 411, 355-365

The path from Abelson leukemia virus to Gleevec

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1934577/>

Human Papilloma Virus (HPV)

<http://www.cdc.gov/std/hpv/default.htm>

Hepatitis B

<http://www.microbiologybook.org/virol/hepatitis-virus.htm>

<http://www.microbiologybook.org/virol/hepatitis-disease2.htm>

Epstein Barr Virus

Flint Vol II search index

<http://www.microbiologybook.org/virol/herpes.htm>

Infections of the circulatory system

Hanta virus

Flint Vol II search index

Experiential Education and E-Learning

The Course MOODLE web site

To access Moodle, please follow the instructions below.

1. Go to: <http://moodle.yorku.ca>
2. Log in with your Passport York account.

Here you will find

- An updated course outline
- Optional reading
- The course wiki
- Forum
- Announcements
- Grades

Please note that the course director's announcements on the Moodle and in-class updates take precedence over any other information in the course MOODLE web site. The course director is not responsible for the accuracy of the notes posted by students in the wiki/forum. The exam is not restricted to the material posted on wiki. If you have technical Moodle-related questions, please direct them to UIT Client Services at 416.736.2100 x55800 or email helpdesk@yorku.ca.

Other Information

Tips on studying for this course:

- For the exams, you must know and understand the material presented in the lectures.
- The online resources (to be specified on the Moodle) and textbooks can help students consolidate and expand their understanding of the material. However, much of the online resources and textbooks will not be covered in class. For the exams you are NOT expected to know material from the online resources and textbooks which has not been covered in the lectures.
- Students need to attend **all lectures** in order to do well in the course. The discussions in class are critical for the understanding of the material. The center of the course is the lectures. It is your responsibility to attend lectures as my multimedia presentations will not be provided outside the classrooms. Do not rely on the Wiki: take your own notes.
- The material presented in the lectures and other components of the course such as tests and exam have been developed from a large variety of resources, including websites, textbook supplements and the material mentioned above.

- In general, it is best that a student who was unable to attend a lecture borrow the relevant notes from a classmate. You may also wish to check the course Moodle website for additional relevant material. Here, you can find an updated course outline and many on-line resources. In addition, you can use the course wiki. Furthermore, you have my permission to use an audio tape-recorder in class (or to arrange with a classmate to do it for you).
- I will usually be available before/after each lecture to address individual questions. If you need to speak with me out of class, please send me an email to set an appointment.

Course Policies

Tests and Exams

Attendance for all exams is mandatory. Exams missed on the ground of medical circumstances must be supported by an Attending Physician's Statement, which can be downloaded from:

http://www.registrar.yorku.ca/pdf/attend_physician_statement.pdf, or a statement by a psychologist or counsellor. Students are NOT expected to disclose the nature of the illness. The document must specify:

- 1) date of consultation
- 2) contact information (e.g. phone number of the hospital; legible name of the health provider) that would allow verification of the document
- 3) a statement that the student would not have been able to attend class (or carry out activities) during the relevant period of time

The documentation must be dated on the same day as the exam or earlier, or it will not be accepted. The Course Director must be notified by email within 24 hours in the case of a missed test or exam. Appropriate documentation must be submitted to the Course Director within one week after the test or exam. No opportunities to make up missed mid-term exams will be offered. However, after acceptable justification for a missed exam has been received, the percentage value of the missed mid-term will be added to the final exam. If the final exam is missed, the student must petition the Registrar for permission to write the final exam. Deferred exams are similar to the original exam in terms of material covered and level of difficulty, However, the format will not be identical to the original. Accordingly, all approved deferred exams will be consisting of short-answer questions (no multiple-choice).

Emailing the TAs and Course Director

Your email will be read and answered as soon as possible. However, we will open only e-mails that fulfill the following requirements:

- Your email must be sent from your regular yorku.ca email account (**not from the moodle server**). Do not use non-yorku.ca accounts (such as hotmail or personal gmail). Emails from non-yorku.ca accounts or from the Moodle will likely languish in a spam folder that is checked only intermittently.
- Be sure to include your full name and student number in your email text.
- Your email must include "BIOL3155" in the subject line
- Your email must NOT include an attachment.

Copyright Policy at York University (Q & A from YorkU Web site)

"1. Question: Can I (the instructor) include copyrighted content in a class presentation without permission of the rights holder?

Answer: Yes, if you stay within the limits of the Copyright Act. The educational exceptions allow you to:

- "make a manual reproduction of a work onto a dry-erase board, flip chart or other similar surface intended for displaying handwritten material, or"
- "make a copy of a work to be used to project an image of that copy using an overhead projector or similar device"
- "The display must be on campus, there can be no commercial version available that is appropriate for that use and you are not able to distribute copies in either paper or electronic form."

2. **Question:** Can I (the instructor) post that same presentation on my Course website?

Answer: “No, the educational exceptions do not allow you to distribute copies in either paper or electronic form.”

University Policies

Academic Honesty and Integrity

York students are required to maintain the highest standards of academic honesty and they are subject to the Senate Policy on Academic Honesty (<http://secretariat-policies.info.yorku.ca/policies/academic-honesty-senate-policy-on/>). The Policy affirms the responsibility of faculty members to foster acceptable standards of academic conduct and of the student to abide by such standards.

There is also an academic integrity website with comprehensive information about academic honesty and how to find resources at York to help improve students' research and writing skills, and cope with University life. Students are expected to review the materials on the Academic Integrity website at - <http://www.yorku.ca/academicintegrity/>

Access/Disability

York University is committed to principles of respect, inclusion and equality of all persons with disabilities across campus. The University provides services for students with disabilities (including physical, medical, learning and psychiatric disabilities) needing accommodation related to teaching and evaluation methods/materials. These services are made available to students in all Faculties and programs at York University.

Student's in need of these services are asked to register with disability services as early as possible to ensure that appropriate academic accommodation can be provided with advance notice. You are encouraged to schedule a time early in the term to meet with each professor to discuss your accommodation needs. Please note that registering with disabilities services and discussing your needs with your professors is necessary to avoid any impediment to receiving the necessary academic accommodations to meet your needs.

Additional information is available at the following websites:

Counselling & Disability Services - <http://cds.info.yorku.ca/>

Counselling & Disability Services at Glendon - <http://www.glendon.yorku.ca/counselling/personal.html>

York Accessibility Hub - <http://accessibilityhub.info.yorku.ca/>

Ethics Review Process

York students are subject to the York University *Policy for the Ethics Review Process for Research Involving Human Participants*. In particular, students proposing to undertake research involving human participants (e.g., interviewing the director of a company or government agency, having students complete a questionnaire, etc.) are required to submit an *Application for Ethical Approval of Research Involving Human Participants* at least one month before you plan to begin the research. If you are in doubt as to whether this requirement applies to you, contact your Course Director immediately.

Religious Observance Accommodation

York University is committed to respecting the religious beliefs and practices of all members of the community, and making accommodations for observances of special significance to adherents. Should any of the dates specified in this syllabus for an in-class test or examination pose such a conflict for you, contact the Course Director within the first three weeks of class. Similarly, should an assignment to be completed in a lab, practicum placement, workshop, etc., scheduled later in the term pose such a conflict, contact the Course director immediately. Please note that to arrange an alternative date or time for an examination scheduled in the formal examination periods (December and April/May), students must complete an Examination Accommodation Form, which can be obtained from Student Client Services, Student Services Centre or online at

http://www.registrar.yorku.ca/pdf/exam_accommodation.pdf (PDF)

Student Conduct in Academic Situations

Students and instructors are expected to maintain a professional relationship characterized by courtesy and mutual respect. Moreover, it is the responsibility of the instructor to maintain an appropriate academic atmosphere in the classroom and other academic settings, and the responsibility of the student to cooperate in that endeavour. Further, the instructor is the best person to decide, in the first instance, whether such an atmosphere is present in the class. The policy and procedures governing disruptive and/or harassing behaviour by students in academic situations is available at - <http://secretariat-policies.info.yorku.ca/policies/disruptive-and-or-harassing-behaviour-in-academic-situations-senate-policy/>

Disclaimer

The information presented in the lectures is provided for educational purposes only, and should not be considered as a medical advice.