

Department of Biology Course Outline

SC/BIOL 2905 3.00 Introduction to Clinical Microbiology Winter 2019-20

Learning Outcomes

This course is intended as an introduction to clinical microbiology for students interested in nursing or other health-related fields. Upon completion of this course, students will have a general understanding of the different types of disease-causing pathogens, transmission of pathogenic microorganisms, host responses and how pathogens attempt to evade the body's immune system. The student will build a practical, patient-focussed understanding of microbiology.

There are additional skills nursing students are expected to gain from a science course such as microbiology. From the Essentials of Baccalaureate Education for Professional Nursing Practise, liberal education should provide the professional nurse with the ability to:

- Develop and use higher-order problem-solving and critical thinking skills;
- Integrate concepts from behavioural, biological, and natural sciences in order to understand self and others;
- Interpret and use quantitative data; and
- Use the scientific process and scientific data as a basis for developing, implementing, and evaluating nursing interventions.

Prerequisites

At least 30 credits towards a degree program;
6 credits from the following: SC/BIOL 1000 3.00, SC/BIOL 1001 3.00, SC/BIOL 1010 6.00; SC/NATS 1610 6.00, SC/NATS 1650 6.00, SC/NATS 1660 6.00, SC/NATS 1670 6.00, SC/NATS 1675 6.00, SC/NATS 1680 6.00, HH/KINE 2011 3.00, HH/KINE 2031 3.00.

Course credit exclusion:

SC/BIOL 2900 3.00, SC/BIOL 3150 3.00, or SC/BIOL 3150 4.00

Note: Not eligible for Biology credit towards a Biology or Biochemistry program.

In order to be prepared for the course, students must be previously familiar with concepts related to "the central dogma" (DNA, RNA, proteins, phenotype) and understand topics related to the cell structure and function. All of the above topics are part of all prerequisite mentioned above.

In order to give the student an early feedback on their knowledge of the fundamental concepts in biology, we will have the first mid-term on the second class. This mid term will test on the foundations of biology mentioned above. For more information, check the announcement on the Moodle.

A good overview of these concepts can be found in most Biology/Microbiology textbooks. For a free resource see:

<https://cnx.org/contents/5CvTdmJL@5.28:rFziotaH@5/Introduction>

Course Instructor and Contact Information

Dr. Motti Anafi
E-mail: moanafi@yorku.ca
Office hours: E-mail to set an appointment

TA marker:
TBA

Schedule

Course Schedule and Location

The course will be offered on Wednesdays 2:30-5:30pm in LAS A

Evaluation

Mid-Term Exam 1 10%
Date: January 15, 2020
Time: 2:30pm
Duration: 25 minutes
Location: LAS A

This exam will test you on the material you need to know from the **prerequisites**.

Mid-Term Exam 2 20%
Date: February 12, 2020
Time: 2:30pm
Duration: 60 minutes
Location: LAS A

This exam will be on **Parts 1 and 2** of the course.

Mid-Term Exam 3 20%
Date: March 25, 2020
Time: 2:30pm
Duration: 60 minutes
Location: LAS A

This exam **cumulative** but it will concentrate on **Part 3** of the course.

Final Exam 50%
Duration: 150 minutes
Date and location: will be published by the registrar office.

Important: It is your responsibility as a student to ensure that you are available to sit for examinations during the entire exam period for the term corresponding to your course (April 7-25). We strongly recommend that you do not make any travel arrangements prior to the end of the term's examination schedule.

Resources

Optional textbook:

Recommended (optional) Readings:

- 1) If you want to use a hardcopy text, the recommended textbook for the course is: Bauman Microbiology with Disease by body system. In the bookstore you will find the last edition (5th)

in a form of loose leaf plus e-text for \$100 (ISBN- 9780134883182). However, any edition is fine. You will also find the text on reserve in Stacie Library.

**For an access to the e-text use the ID:
anafi11624**

2) Free online textbook: Microbiology by OpenStax college. This textbook can be used online <https://cnx.org/contents/5CvTdmJL@5.28:rFziotah@5/Introduction> and offline (as a PDF file, link on the Moodle or go to “downloads” at the bottom of the page).

3) Use the search box in <http://www.ncbi.nlm.nih.gov/sites/entrez?db=Books> with keywords specified in class and in the course Moodle web site.

3) Other possible textbooks:

Any “Microbiology” text you can find in the library (there are quite a few over there) is likely to be a good reference. Two examples:

- Microbiology: A Human Perspective by Nester.
- Microbiology, by Jacquelyn Black Microbiology: Principles and Explorations.

4) Many online resources on the course outline.

Course Content

Course Outline (+optional reading)

Part 1: Introduction

Tips on studying for the course

Emerging infectious diseases

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

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

OpenStax: Search the text with keywords

Part 2: Medical Bacteriology

(A lot of material at:

- 1) <http://www.ncbi.nlm.nih.gov/books/NBK7627/>
- 2) <http://www.textbookofbacteriology.net/index.html>
- 3) OpenStax Microbiology (see below)

Structure of bacteria

OpenStax chapter 4

Bacterial genetics

OpenStax chapters 10-13

Antibacterial agents and bacterial resistance

<http://www.merck.com/mmpe/sec14/ch170/ch170a.html>

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

OpenStax chapters 13-14

Diversity of microorganisms

http://www.learner.org/channel/courses/biology/support/4_microb.pdf

OpenStax chapters 4-5

Part 3: The Immune System

A lot of reading material at:

- 1) <http://www.ncbi.nlm.nih.gov/books/> (use the search box)
- 2) <http://www.merck.com/mmpe/sec14.html>
- 3) OpenStax chapters 17-19

Basic concepts in immunology

<http://virology-online.com/general/Immunology.htm>

The specific immune response

OpenStax chapter 18

Vaccination

<http://www.merck.com/mmpe/sec14/ch169/ch169a.html>

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

<http://virology-online.com/general/vaccines.htm#Vaccines>

OpenStax chapter 18

Part 4: Human Virology

A lot of reading material at:

<http://virology-online.com/general/index.htm>

OpenStax chapter 6, search the rest of the book with specific keywords

Structure/function of viruses

<http://virology-online.com/general/Replication.htm>

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

OpenStax chapter 6

HIV: epidemiology, treatment and prevention

http://www.learner.org/channel/courses/biology/support/6_hiv.pdf

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

OpenStax chapter 25

Influenza: epidemiology, complications, treatment and prevention

<http://www.cdc.gov/h1n1flu/>

<http://virology-online.com/general/Outbreak3.htm>

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

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

OpenStax chapter 22

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

If you have technical Moodle-related questions, please direct them to UIT Client Services at 416.736.2100 x55800 or email helpdesk@yorku.ca.

Important Dates

Important Dates: For updates check <https://registrar.yorku.ca/enrol/dates/fw19>

SESSIONAL DATES

	FALL (F)	YEAR (Y)	WINTER (W)
Classes start	Sept. 4	Sept. 4	Jan. 6
Last date to announce components of final grades	Sept. 18	Sept. 18	Jan. 20
Fall Reading Week ¹	Oct. 12-18	Oct. 12-18	
Last date to submit Fall term work	Dec. 4	Dec. 4	
Fall classes end	Dec. 3	Dec. 3	
Fall Study Day ²	Dec. 4	Dec. 4	
Fall examinations ³	Dec. 5-20	Dec. 5-20	
Winter Reading Week ¹		Feb. 15-21	Feb. 15-21
Last date to submit Winter term work		April 6	April 6
Winter classes end		April 5	April 5
Winter Study Days ²		April 6	April 6
Winter examinations ³		April 7-25	April 7-25

ADD/DROP DEADLINES

	FALL (F)	YEAR (Y)	WINTER (W)
Last date to add a course without permission of instructor (also see Financial Deadlines)	Sept. 17	Sept. 17	Jan. 19
Last date to add a course with permission of instructor (also see Financial Deadlines)	Oct. 1	Oct. 22	Feb. 3
Drop deadline: Last date to drop a course without receiving a grade (also see Financial Deadlines)	Nov. 8	Feb. 3	March 13
Course Withdrawal Period (withdraw from a course and receive a grade of "W" on transcript – see note below)	Nov. 9 - Dec. 3	Feb. 4 - April 5	March 14 - April 5

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 (specified in the course outline) 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 **on time** 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 the course Moodle, 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. All approved deferred exams will be consisting of short-answer questions (no multiple-choice in most cases).

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 “BIOL/2905” the subject line
- Your email must NOT include an attachment.

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

“1. Q 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.Q Can I 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.”

Disclaimers

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

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/>

Numerous students in Faculty of Science courses have been charged with academic misconduct when materials they uploaded to third party repository sites (e.g. Course Hero, One Class, etc.) were taken and used by unknown students in later offerings of the course. The Faculty's Committee on Examinations and Academic Standards (CEAS) found in these cases that the burden of proof in a charge of aiding and abetting had been met, since the uploading students had been found in all cases to be willfully blind to the reasonable likelihood of supporting plagiarism in this manner. Accordingly, to avoid this risk, students are urged not to upload their work to these sites. Whenever a student submits work obtained through Course Hero or One Class, the submitting student will be charged with plagiarism and the uploading student will be charged with aiding and abetting. Note also that exams, tests, and other assignments are the copyrighted works of the professor assigning them, whether copyright is overtly claimed or not (i.e. whether the © is used or not). Scanning these documents

constitutes copying, which is a breach of Canadian copyright law, and the breach is aggravated when scans are shared or uploaded to third party repository sites.

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.

Students 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/>