

## Department of Biology Course Outline

### SC/BIOL 2905 3.00 Introduction to Clinical Microbiology Summer 2020

#### 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, the 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, a 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 behavioral, biological, and natural sciences 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/NATS1675 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 prerequisites mentioned above.

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

Here, I posted for you a few of my lectures to cover for the prerequisite material. These lectures are optional. If you have a strong biology background you are likely to be fine with your previous knowledge. In addition, 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](mailto:moanafi@yorku.ca)

Office hours: Each Monday 5-6 pm (using ZOOM). Check the announcement for more information.

### TA markers:

TBA

## Schedule

### Course Schedule

The course will be offered on Tuesdays from 6:30-9:30 pm using remote teaching technologies (ZOOM). The remote teaching sessions will be used as an opportunity for further discussions on the material discussed in the prerecorded lectures, to be posted for you on the Moodle. The discussion including questions-answers, comments, and extension of the material covered in the lectures. The ZOOM session will be opened each Tuesday at exactly 6:30 pm and will stay open as long students will be in attendance.

## Evaluation

### All exams will be delivered remotely on the Moodle.

Mid-Term Exam 1          10%

Date: May 19, 2020

Time: 6:30pm

Duration: 30 minutes

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

Mid-Term Exam 2          20%

Date: June 16, 2020

Time: 6:30pm

Duration: 60 minutes

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

Mid-Term Exam 3          20%

Date: July 21, 2020

Time: 6:30pm

Duration: 60 minutes

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

Final Exam                  50%

Duration: 150 minutes

Date: will be published by the registrar office.

### Important:

- 1) **Exams and other assessments may be conducted with the aid of an online proctoring service**
- 2) Students SHOULD NOT use any notes or textbooks. All exams are based on the CLOSED BOOKS environment. The duration of the exams is based on the normal duration we are using "in class" exams (without using textbooks or notes, which are not allowed in class as well).
- 3) You must start the exam on time. The extra time the exam will be opened is not to signal that you can start the exam late. If you start writing late, the grade may not be counted at all, or you will not receive any buffer points if added.
- 4) Students should not use the same IP address during the exam as any of the other students writing the exam.

- 5) Students are responsible to have the appropriate internet connections to write the exam without interferences.
- 6) For a student who will not be able to write a mid-term exam **for any reason whatsoever** (technical: computer or internet-related problem of all kinds, health-related, family matter. Just anything), the weight of the mid-term will be transferred to the final exam.
- 7) If the online final exam is missed for any reason, the student will be able to write a regular final exam (in-class) to be arranged as a deferred exam when the university will be open. The format of all deferred exams is likely to be different from the original exam (e.g. short answer questions). We will have only one deferred exam for everybody missed the online final exam. If this deferred exam is missed the student must petition his home faculty for permission to write a deferred exam.
- 8) No doctor notes or any other documentation are required for missed exams.
- 9) It is your responsibility as a student to ensure that you are available to sit for final examinations during the entire exam period for the term corresponding to your course (Aug 14-21).

## Resources

### Optional textbook:

### Recommended (optional) Readings:

1) 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).

2) 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.

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

3) Other possible textbooks:

Any "Microbiology" text you can found 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.

### Technical quality of the pre-recorded lectures

I am trying to bring you the lectures at their best quality. However, as I am using quite a lot of multimedia (animations, figures, and videos) as part of the lecture, the size of the lecture files is getting quite large. In few places, especially when I am using heavy animations, I have made for you, or when I bring up a heavy figure or video, the volume of my voice is reduced/chopped in response to this activity. I believe that in these cases even my strong computer and video editing software have some difficulties with the load during the lecture recording. So, it is not the microphone (I am using a professional microphone), but my attempt to give you a clear audio-visual multimedia lecture. As the animations and the figures are very important for the lectures and since you can still get the lecture information even when the volume of my voice is reduced/chopped for few seconds, this is the best balance I can make for you. (Yes, I did quite a lot of experiments on this including recording each lecture several times under different conditions).

So how to get the best quality? Most importantly, use good headphones when you are listening to my lectures. By doing so you would be able to hear my voice even when the volume is reduced or chopped to some level. The quality of the videos would be better if you use a strong computer and a fast internet. Use a regular PC or laptop. Do not watch them on a cellphone or other weaker devices. Periodically, when many students are watching the same file, the servers (YouTube and the Moodle) are getting slow. Overall, it is about a balance: And I hope I created the best balance for you.

## 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 with optional reading
- Forum
- Announcements
- Grades
- Pre-recorded lectures
- Documentations
- Online test and exams
- Free textbook

The course will be delivered remotely using the application Zoom and pre-recorded lectures on the Moodle. All exams will be delivered online using the “Quizes” on the Moodle.

Students must to be familiar with the program ZOOM as a prerequisite for this course. I will not be able to solve personal technical problems during the lecture or at any other time. Please make sure your audio and video are set properly before the session.

If you have technical problems using ZOOM or Moodle-related questions, please direct them to UIT Client Services at 416-736-2100 x55800 or email [helpdesk@yorku.ca](mailto:helpdesk@yorku.ca).

### Copyright protection of the posted videos and exams

- 1) The material presented in the pre-recorded lectures and other components of the course such as tests and exams has been developed from a large variety of resources, including websites, textbook supplements and the material mentioned above.
- 2) I am doing my best to post the credit for the developers of each figure and videos that were included in my lectures. However, in many cases, the original material is no longer available on the web, and my ability to find the person or organization deserved the credit might not be possible despite my efforts.
- 3) **The prerecorded lectures and the questions on the online exams** are copyright protected to the course director and many third parties, private people and organizations.
- 4) Although the videos will be available for you through the course on the Moodle, **students are NOT allowed to copy the videos and exam questions in any form and/or to post them elsewhere, directly or as an embedded link. This activity will be considered an infringement of copyright law.**

### From the Dean of Science Office:

“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."**

## Course Content

### Course Outline (+optional reading)

Total pre-recording time: 1873 minutes

- The lectures to cover for mid-term 2 will be posted on May 12.
- The lectures to cover for mid-term 3 will be posted on June 5
- The lectures to cover for the rest of the course will be posted on July 3

#### **Part 1: Introduction** (prerecorded time: 370 minutes, week 1- 3)

Tips on studying for the course (ZOOM discussion). This session on May 12 at 6:30 pm is mandatory.

Emerging infectious diseases

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

OpenStax: Search the text with keywords

Diversity of microorganisms

OpenStax chapters 4-5

#### **Part 2: Medical Bacteriology** (prerecorded time: 300 minutes, weeks 3 and 4)

(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/>

**Mid-term 2 (week 6)**

**Part 3: The Immune System** (pre-recorded time: 520 minutes, weeks 5-8)

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

Vaccination and passive immunization

Acceptance and rejection of 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

Allergy

OpenStax chapter 19

<https://www.cdc.gov/healthyschools/foodallergies/publications.htm>

<https://www.cdc.gov/nchs/fastats/allergies.htm>

**Mid-term 3 (week 10)**

**Part 4: Human Virology** (pre-recorded time: 683 minutes, weeks 8-12)

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.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.cdc.gov/flu/?s_cid=internal6)

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

OpenStax chapter 22

Human Papilloma Virus (HPV)

<https://www.cdc.gov/hpv/index.html>

**Final exam**

**Resources**

**Optional textbooks:**

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2) 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: anafi75593**

Registration steps:

[https://portal.mypearson.com/course-home/handout/anafi75593/Student\\_Registration\\_Handout\\_anafi75593.pdf](https://portal.mypearson.com/course-home/handout/anafi75593/Student_Registration_Handout_anafi75593.pdf)

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.

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- Microbiology, by Jacquelyn Black Microbiology: Principles and Explorations.

4) Many online resources on the course outline.

**Course Policies**

**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**). As much as possible, do not use non-yorku.ca accounts (such as Hotmail or personal Gmail). Emails from non-yorku.ca accounts or 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” in the subject line. I am teaching other courses.
- Your email must NOT include an attachment.

## Disclaimers

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

## Important Dates

**Important Dates: For updates check <https://registrar.yorku.ca/enrol/dates/su20>**

### ✓ Summer 2020 Sessional Dates (revised March 25, 2020)

EVENT	SU	S1	S2
Course start date	May 11	May 11	June 29
Last date to add a course without permission of instructor	May 25	May 15	July 3
Last date to add a course with permission of instructor	June 8	May 26	July 10
Last date to drop course without receiving a grade	July 17	June 8	July 29
Reading Week	June 23-26	N/A	N/A
Study days	Aug. 8 Aug. 9 Aug. 11 Aug. 13	June 23	Aug. 11 Aug. 13
Course Withdrawal Period (withdraw from course and receive a "W" on transcript – see <b>Add and Drop Deadline Information</b> below)	July 18-Aug. 12	June 9-June 22	July 30-Aug. 12
Course end date	Aug. 12	June 22	Aug. 12
Examinations	Aug. 14-21	June 24-26	Aug. 14-21

## 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 the material from the online resources and textbooks which has not been covered in the lectures.
- I will usually be available after each ZOOM meeting to address individual questions. But please send me an email to set an online appointment.

**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 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.

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 <https://secure.students.yorku.ca/pdf/religious-accommodation-agreement-final-examinations.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-andor-harassing-behaviour-in-academic-situations-senate-policy/>