### Course Description
An introductory course in medical microbiology designed for nursing students. Topics include: structure/function relationships of viruses, bacteria and fungi; physical and chemical control of microbial growth; human/microbe interactions; immunology; major infectious diseases of humans; epidemiology and public health.

### Prerequisites (strictly enforced)
Entry in the collaborative Nursing program. Course credit exclusions: SC/Biol 2905 3.00, SC/Biol 3150 4.00. Note: Not eligible for biology credit towards a Biology/Biochemistry /Environmental Biology program. Not open to students who have taken SC/Biol 3150 4.00.

### Course Instructor(s) and Contact Information
Dr. Motti Anafi
E-mail: moanafi@yorku.ca
Office hours: Please send me an e. mail to set an appointment.
TA markers: TBA

### Schedule
This course will be offered through remote/online delivery. The direct teaching sessions portion will be offered on Mondays (section A) or Wednesdays (section B) at 2:30 pm using remote teaching technologies (ZOOM). The remote teaching sessions will be used as an opportunity for discussion based mainly on questions-answers of the material covered in the lectures. The ZOOM session will be opened each Monday (section A) and Wednesday (section B) at 2:30 pm and will stay open as long as students are in attendance.
All mid-term exams will take place on Sundays at 4:30pm for both sections.

### Evaluation
<table>
<thead>
<tr>
<th>Mid-Term Exam 1</th>
<th>10%</th>
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</thead>
<tbody>
<tr>
<td>Date: Sunday, Sept 27, 2020</td>
<td></td>
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<tr>
<td>Time: 4:30pm</td>
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<tr>
<td>Duration: 40 minutes</td>
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<tr>
<td>This exam will be on Parts 1 of the course (basic concepts in biology).</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Mid-Term Exam 2</th>
<th>20%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date: Sunday, Oct. 25, 2020</td>
<td></td>
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<tr>
<td>Time: 4:30pm</td>
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<tr>
<td>Duration: 60 minutes</td>
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<tr>
<td>This exam will be on Parts 2 and 3 of the course (emerging infectious diseases and bacteriology).</td>
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</table>
Mid-Term Exam 3 20%
Date: Sunday, Nov. 15, 2020
Time: 4:30pm
Duration: 60 minutes
This exam is cumulative but it will concentrate on Part 4 of the course (Immunology).

Final Exam 50%
Duration: 150 minutes
Date: will be published by the Office of the Registrar.

Academic honesty code
1) You and only you should be involved with writing the exam/quiz.
2) Do not make any contacts (online or physical) with anybody during the exam/quiz.
3) Do not contact services such as Chegg.com during the exam/quiz and do not upload into such services any information from the exam/quiz during or after the exam/quizzes.
4) Do not take any screenshot of my exams/quizzes or copy-paste any information. This is by itself a violation of the academic honesty code and copyright.
5) Do not share any information from the exam/quiz with anybody else. Not during the exam and not after.
6) Do not use textbooks, notes, or internet resources during the exam/quiz.
7) Students should not use the same IP address during the exam as any of the other students writing the exam.

Important:
• Again, all exams are based on a CLOSED BOOK environment. Students SHOULD NOT use any notes or textbooks. The duration of exams is designed for a closed book format, with no time provided for referring to other resources.
• You must start the exam on time.
• Students are responsible for having appropriate internet connections to write the exam without interference.
• For a student who will not be able to write a mid-term/ final exam for any reason whatsoever (technical: computer or internet-related problem of all kinds, health-related, family matter. Just anything), the student will be able to write a regular in-class deferred exam to be arranged when the university reopens during the deferred exam time (to be announced). The level of difficulty and the material covered will be similar to the original exam. However, the format of all deferred mid-terms/final exams is likely to be different from the original exam (e.g. short answer questions in most cases). We will have only one deferred exam for everybody who misses an online exam. If this deferred exam is missed the student must petition their home faculty for permission to write a second deferred exam. If the petition will be graded the student will be evaluated on an oral exam.
• No doctor notes or any other documentation are required for missed exams.
• 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 Fall term (Dec 9-23, 2020).
## Important Dates

**Important Dates:** For updates check [https://registrar.yorku.ca/enrol/dates/fw20](https://registrar.yorku.ca/enrol/dates/fw20)

### Important Dates for Fall (F), Year (Y) and Winter (W) Terms

#### Sessional Dates

<table>
<thead>
<tr>
<th>EVENT</th>
<th>FALL (TERM F)</th>
<th>YEAR (TERM Y)</th>
<th>WINTER (TERM W)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classes start</td>
<td>Sept. 9</td>
<td>Sept. 9</td>
<td>Jan. 11</td>
</tr>
<tr>
<td>Last date to announce components of final grades</td>
<td>Sept. 23</td>
<td>Sept. 23</td>
<td>Jan. 25</td>
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<tr>
<td>Fall Reading Week(^1)</td>
<td>Oct. 10-16</td>
<td>Oct. 10-16</td>
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<tr>
<td>Last date to submit Fall term work</td>
<td>Dec. 9</td>
<td>Dec. 9</td>
<td></td>
</tr>
<tr>
<td>Fall classes end</td>
<td>Dec. 8</td>
<td>Dec. 8</td>
<td></td>
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<tr>
<td>Fall Study Day(^2)</td>
<td>Dec. 9</td>
<td>Dec. 9</td>
<td></td>
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<tr>
<td>Fall examinations(^3)</td>
<td>Dec. 9-23</td>
<td>Dec. 9-23</td>
<td></td>
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<tr>
<td>Winter Reading Week(^4)</td>
<td>Feb. 13-19</td>
<td>Feb. 13-19</td>
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<tr>
<td>Last date to submit Winter term work</td>
<td>April 13</td>
<td>April 13</td>
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<tr>
<td>Winter classes end</td>
<td>April 12</td>
<td>April 12</td>
<td></td>
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<tr>
<td>Winter Study Days(^5)</td>
<td>April 13</td>
<td>April 13</td>
<td></td>
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<tr>
<td>Winter examinations(^6)</td>
<td>April 14-28</td>
<td>April 14-28</td>
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#### Add/Drop Deadlines

<table>
<thead>
<tr>
<th>EVENT</th>
<th>FALL (TERM F)</th>
<th>YEAR (TERM Y)</th>
<th>WINTER (TERM W)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Last date to add a course without permission of instructor (also see Financial Deadlines)</td>
<td>Sept. 22</td>
<td>Sept. 22</td>
<td>Jan. 25</td>
</tr>
<tr>
<td>Last date to add a course with permission of instructor (also see Financial Deadlines)</td>
<td>Oct. 6</td>
<td>Oct. 27</td>
<td>Feb. 8</td>
</tr>
<tr>
<td>Drop deadline: Last date to drop a course without receiving a grade (also see Financial Deadlines)</td>
<td>Nov. 6</td>
<td>Feb. 5</td>
<td>March 12</td>
</tr>
<tr>
<td>Course Withdrawal Period (withdraw from a course and receive a grade of &quot;W&quot; on transcript – see note below)</td>
<td>Nov. 7 - Dec. 8</td>
<td>Feb. 6 - April 12</td>
<td>March 13 - April 12</td>
</tr>
</tbody>
</table>
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).

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. Three examples:
• Microbiology: A Human Perspective by Nester.
• Microbiology, by Jacquelyn Black Microbiology: Principles and Explorations.
• Microbiology with Disease by body system by Robert Bauman

4) Many online resources on the course outline.

Learning Outcomes
Clinical Microbiology for Nurses course is an introductory course in medical microbiology designed for
nursing students. Upon completion of this course, students will

• Be able to explain concepts related to different types of disease-causing pathogens,
  transmission of pathogenic microorganisms, host responses and how pathogens attempt to
  evade the body’s immune system.
• build a practical, patient-focused understanding of microbiology, allowing them to evaluate and
  accurately communicate with patients, their families, physicians and other members of the
  health care team in the interest of quality patient care.
• Develop and use critical thinking skills.
• Use the scientific process and scientific data as a basis for evaluating nursing interventions.
Course Content

Course Outline (+optional reading)

- The lectures to cover for mid-term 1 will be posted on September 2.
- The lectures to cover for mid-term 2 and 3 will be posted on September 12.
- The lectures to cover for mid-term 2 and 3 will be posted on October 2.
- The lectures to cover for the rest of the course will be posted on October 25.

Part 1: Introduction to basic biology
   - Cell structure and function
     OpenStax chapter 3-4
   - From the DNA to the organism
     http://www.ncbi.nlm.nih.gov/books/bv.fcgi?rid=cooper.TOC&depth=2 Ch. 4-7
     OpenStax chapters 10-12

Mid-term 1

Part 2: Introduction to microbiology
   - Tips on studying for the course
   - Diversity of living organisms
     OpenStax chapters 4-5
   - An overview of viruses, prokaryotic and eukaryotic cells
   - Emerging infectious diseases
     http://emergency.cdc.gov/bioterrorism/
     OpenStax: Search the text with keywords
     OpenStax chapters 4-6

Part 3: 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
Mid-term 2

Part 4: 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
Vaccination and passive immunization
Acceptance and rejection of vaccination
http://www.cdc.gov/vaccines/
http://virology-online.com/general/vaccines.htm#Vaccines

OpenStax chapter 18

Mid-term 3

Part 5: Human Virology

Basic concepts in human virology
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://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

OpenStax chapter 25

Final exam
Copyright protection of the posted videos
1) The material presented in the pre-recorded lectures has been developed from a large variety of resources, including websites and textbooks.
2) I am doing my best to post the credit for the developers of each external resource that was 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 are copyright protected to the course director and many third parties, private people, and organizations.
4) The prerecorded lecture will be available for you through the course on the Moodle. You can use them in the Moodle, but if you wish, From the Moodle you can go to the source of the lectures on YouTube by clicking the YouTube link on the lower right of each video lecture on the Moodle. On YouTube you will find some closed captions and some other functions. The prerecorded lectures are “unlisted” on YouTube- do not share the link with others and do not use the link directly. You need to go to Moodle first and to sign in with your York Password, and from the Moodle you will be able to go to the source on YouTube if you wish to do so.
5) Students are NOT allowed to copy the videos and/or to post them elsewhere, directly or as an embedded link.
6) Not complying with Any of the above will be considered an infringement of copyright law.

Academic honesty

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. Chegg.com, 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.”

Academic honesty code for BIOL2900
1) You and only you should be involved with writing the exams.
2) Do not make any contacts (online or physical) with anybody during the exams.
3) Do not contact services such as Chegg.com during the exams and do not upload into such services any information from the exams during or after the exams.
4) Do not take any screenshot of the exams or copy-paste any information. Any Copy-paste is by itself is a violation of the academic honesty code.
5) Do not share any information from the exam/quiz with anybody else. Not during the exam and not after.
6) Do not use textbooks, notes, or internet resources during the exams.
**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
- Discussion Forum
- Announcements
- Grades
- Pre-recorded lectures
- Documentation
- Online test and exams
- Free textbook

The course will be delivered remotely using the application Zoom and pre-recorded lectures on Moodle. Exams will be delivered online using the “Quiz” format on the Moodle or in-class (deferred exams).

Students must 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.

Several platforms will be used in this course (e.g., Moodle, Zoom, etc.) through which students will interact with the course materials, the course director / TA, as well as with one another. Please review the syllabus to determine how the class meets (in whole or in part), and how office hours and presentations will be conducted.

Please note the following:
- Zoom is hosted on servers in the U.S. This includes recordings done through Zoom.
- If you have privacy concerns about your data, provide only your first name or a nickname when you join a session.
- The system is configured in a way that all participants are automatically notified when a session is being recorded. In other words, a session cannot be recorded without you knowing about it.

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**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 you consolidate and expand your 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.
Course Policies

Emailing the TAs and Course Director
Your email will be read and answered as soon as possible. However, we will open only emails 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 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/2900” and indicate section A or B in the subject line.
- 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.

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/

Important A note from the Faculty of Science Committee on Examinations and Academic Standards:
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 - https://www.glendon.yorku.ca/counselling/
York Accessibility Hub - http://accessibilityhub.info.yorku.ca/

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 and submit an Examination Accommodation Form at least 3 weeks before the exam period begins. The form can be obtained from Student Client Services, Student Services Centre or online at http://www.registrar.yorku.ca/pdf/exam_accommodation.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/