Introduction to Medical Microbiology
BIOL2905 3.0, Winter 2012-3

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.

Prerequisite:
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; or permission of the instructor. For such permission you must to read and to sign the last page of this course outline and to bring a copy of the signed page to the course director by the second week of the course.

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. A good overview of these concepts can be found in the Bauman textbook. For free resources see http://ghr.nlm.nih.gov/handbook and http://www.ncbi.nlm.nih.gov/books/bv.fcgi?rid=cooper.TOC&depth=2.

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.

Course Schedule and Location

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

Course Director

Dr. Motti Anafi
Room 210, Farquharson Building
Office hours: E-mail to set an appointment

Course TAs:

Michael Fridman
Shamira Davidov-Furman

Sending e-mail to the TAs and Course Director

The only e-mail of the TAs and CD for course related communications is: biol2905@yorku.ca. Do not use our personal e. mails or messages on the moodle for such a communication. Your e-mail will be read and answered as soon as possible. However, we will open only e-mails that fulfill the following requirements:

Your e-mail must be sent from your regular yorku.ca email account (https://mymail.yorku.ca/ not from the moodle server). Furthermore, do not use non- yorku.ca accounts (such as hotmail, gmail etc.) – emails from non-yorku.ca accounts will likely languish in a spam folder that is checked only intermittently.
Your e-mail must include "BIOL/2905" in the subject line.
Be sure to include your full name and student number in your e-mail text.
Your e-mail must NOT include an attachment.

Grading:

Please note that this information is subjected to in-class update.

Mid-Term Exam 1 25%
Date: Wednesday, February 27, 2013 @ 2:30pm
Location: TBA
Mid-Term Exam 2 25%
Date: Wednesday, March 20, 2013 @ 2:30pm
Location: TBA
Final Exam: 50%
Date and place: will be posted by the registrar office.

Participation

Contribution to the wiki 2% (bonus)

All the exams and tests are cumulative (you need to know all the material from the beginning of the course).

Required textbook:

Microbiology, with Disease by Body System by Robert Bauman.
You can get the 3rd edition in YorkU bookstore. However, in general, any edition is fine. Many copies can be found in Steacie Library. My general recommendation is to use the texts as auxiliaries to the lecture material. Read the indicated chapter and check the index of the text for the relevant material as covered in class.

Recommended Readings:

1) Free online resources as specified in below.

2) 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:

- Microbiology: A Human Perspective by Nester.
- Microbiology: Principles and Explorations, by Black.
- Any "Microbiology" text you can find in the library (there are quite a few over there) is likely to be a good reference.

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/

Bauman: Check the index

Infection, infectious diseases and epidemiology

http://www.cdc.gov/excite/classroom/intro_epi.htm

Bauman, Ch. 14

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

Structure of bacteria

http://www.ncbi.nlm.nih.gov/books/bv.fcgi?rid=mmed.chapter.274

Bauman Chs. 3, 4, 5, 6, 11 (Check the index)

Bacterial genetics

http://www.ncbi.nlm.nih.gov/books/bv.fcgi?rid=mmed.chapter.438

Bauman Ch. 7

Antibacterial agents and bacterial resistance

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

Bauman Chs. 9-10

Diversity of microorganisms

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

Bauman: Check the index

Part 3: The Immune System

A lot of reading material at:

1) http://www.ncbi.nlm.nih.gov/books/bv.fcgi?rid=mmed.chapter.137
2) http://www.ncbi.nlm.nih.gov/bookshelf/picrender.fcgi?book=infdis&blobtype=pdf
3) http://www.ncbi.nlm.nih.gov/books/bv.fcgi?rid=imm.TOC&depth=2
4) Bauman Ch. 15-17

Basic concepts in immunology

http://www.merck.com/mmpe/sec13/ch163/ch163a.html

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

http://www.merck.com/mmpe/sec13/ch163/ch163b.html

The specific immune response

http://www.ncbi.nlm.nih.gov/books/bv.fcgi?rid=imm.TOC&depth=2 (Part II)

Bauman Ch. 16

Vaccination

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

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

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

http://www.who.int/ith/chapters/ith2012en_chap6.pdf

Bauman Ch. 17

Part 4: Human Virology

A lot of reading material at:

http://www.merck.com/mmpe/sec14.html

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

http://textbookofbacteriology.net/themicrobialworld/homepage.html

Bauman: Check the index

Structure/function of viruses

http://www.ncbi.nlm.nih.gov/books/bv.fcgi?rid=mmed.chapter.2284

http://www.ncbi.nlm.nih.gov/books/bv.fcgi?rid=mmed.chapter.2252

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

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

HIV: epidemiology, treatment and prevention

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

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

Bauman Ch. 18

Influenza: epidemiology, complications, treatment and prevention

http://www.ncbi.nlm.nih.gov/books/bv.fcgi?rid=mmed.chapter.3053

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/

Bauman Ch. 22

The Course MOODLE web site

To access Moodle, please follow the instructions below.
1. Go to: http://moodle.yorku.ca
3. Log in with your passport York account.

Here you will find

- An updated course outline
- Wiki
- Forum
- Announcements
- Grades

Please note that in-class updates take precedent over the 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. 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.

Do not rely on the Wiki: take your own notes.

Important Dates:

- Winter Classes Start January 7, 2013
- Last day to ENROL without requiring the permission of the Course Director is January 21, 2013.
- Last day to ENROL even with the permission of the Course Director is February 4, 2013.
- Reading Week: Feb. 16-22, 2013
- Last day to DROP the course without a grade being submitted is March 15, 2013.
- Winter classes end: April 8, 2013

Tips on studying for this course:

- For the exams, you must know and understand the material presented in the lectures.
- The online resources 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 class. It is your responsibility to attend lectures as my multimedia presentations will not be provided outside the classrooms.
- The material presented in the lectures and other components of the course such as tests and exam have been developed from large variety of resources, including web sites, textbook supplements and the material mentioned above.
- In general, in those unique circumstances, 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 with many on-line resources. In addition, you can use the wiki of the course. 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 shall 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 e. mail to set an appointment in my office.

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.yorku.ca/rkenedy/courses/petitions/attending_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.

Accommodations

Students who feel that there are extenuating circumstances that may interfere with the successful completion of their exams or other course requirements are encouraged to discuss their concerns with the Course Director as soon as possible.

Students with physical, learning or psychiatric disabilities who require reasonable accommodations in teaching style or evaluation methods should discuss the matter with the Course Director early in the term so that appropriate arrangements can be made.

Cheating and Plagiarism:

Cheating and plagiarism are major academic offences and carry serious penalties, ranging from a failing grade on the work in question to expulsion from the university. For more details about cheating, see York University's academic dishonesty policy at the following link:
http://www.yorku.ca/secretariat/legislation/senate/acadhone.htm

http://www.yorku.ca/secretariat/policies/document.php?document=69#_Toc89156096).

Copyright Policy

The Copyright policy of the course is according to the Copyright policy of York University.

FAQs: Copyright and You (from YorkU Web site)

"**1.Q Can I 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 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… 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.

Enrolling in course without prerequisite declaration form

Course: BIOL2905

By signing this form, I acknowledge the following:

a) I am missing the prerequisite for this course.
b) I am aware that I am likely to be missing some of the background that it is assumed all students in the course have.
c) I am aware that additional work will probably be required in order to make up for the lack of prerequisite(s).
d) I understand that it is my responsibility to monitor my performance in the course, especially before the last date to drop the course.
e) I understand that I cannot use the fact that I lack a prerequisite as grounds to drop the course after the drop date.
f) I understand that lacking the prerequisite(s) is liable to have a negative impact upon my performance in the course.
g) I accept that the course director is not obliged to explain any material covered in the prerequisite course in class, nor in discussions concerning tests and/or assignments.
h) I understand that in order to be prepared for the course, I must be previously familiar with concepts related to "the central dogma" (DNA, RNA, proteins, phenotype) and to be familiar with the cell structure and function. I will study these subjects on my own by the second week of the course.

Name (please print):

Student number:

Signature:

Date:

Please note that a copy of this form will be kept in the student file and supplied to appropriate faculty members and/or committees if requested.