BIOL 3150 - MICROBIOLOGY
Winter 2014 Course Outline
Faculty of Science, Department of Biology

Note: All policies herein are binding and apply to all students registered in the course.

COURSE DESCRIPTION

Fundamentals of microbiology; microbial organisms; microbe-host interactions; microbial genetics and evolution; microorganisms and human disease; environmental and applied microbiology. This course consists of two components, the lectures and the labs.

Lectures will be on Tuesday and Thursday from 10:00am – 11:30am in LSB 106.
Labs will be on Tuesday, Wednesday or Thursday from 2:30-5:30pm or 6:30-9:30pm in 117 LUM.

Prerequisite: One of the following: (1) SC/BIOL 2020 4.00 or SC/BCHM 2020 4.00; SC/BIOL 2021 4.00 or SC/BCHM 2021 4.00; SC/BIOL 2040 4.00; (2) if the 3 credit course is taken in either one or more of SC/BIOL 2020, SC/BIOL 2021, SC/BIOL 2040 3.00, then SC/BIOL 2070 3.00 is required. Course credit exclusion: SC/BIOL 3150 3.00. WARNING: Students without pre-requisites will be de-enrolled unless they have advanced standing or permission of the instructor.

COURSE DIRECTOR

Dr. Nicole Nivillac
Office hours: By appointment
E-mail: nivillac@yorku.ca

REQUIRED COURSE MATERIALS

LECTURE MATERIALS

• The 12th or 11th Edition of this text are fine BUT you’ll need to determine chapter and page locations on your own.
• There may be copies of the text on reserve (2 h) in the Steacie Library.
• Additional readings (e.g. review and primary research articles) will be assigned during the course. Articles will be available via the instructor or the York libraries.
• Some assignments will also require additional research.

REQUIRED CLICKERS (PERSONAL RESPONSE SYSTEM)

• Turning Point Clickers will be used in this course. Bring your clicker to every lecture. We will NOT use clickers during the first week of class.
• If you do not already have one, each student must purchase his or her own clicker. Using a clicker not registered to you (or answering clicker questions for a friend) is considered a breach of Academic Honesty.
• **Turning Point Clickers are purchased through York University Computing Services.**
  
  - New clickers are $42 (charged to your student account) and are ordered online with pickup at the William Small Centre
  - Course Instructors and TAs are NOT involved with the sale or registration of clickers
    - To purchase: Go to [www.yorku.ca/prs/students/](http://www.yorku.ca/prs/students/) → Click on “Purchasing Your Clicker”

• **Register your clicker by January 14th, 2014.**
  
  - Go to [www.yorku.ca/prs/students/](http://www.yorku.ca/prs/students/) → Click on “Registering Your Clicker” → Follow the instructions.

**Lab Materials (MANDATORY):**

- Lab coat
- Safety goggles
- Lab manual (will be posted on Moodle)
- Lab notebook (not a binder or loose leaf paper. Your notebook MUST be a bound book).

**COURSE WEBSITE**

- The BIOL3150 Moodle site will include announcements, course materials, online quizzes, resources and a discussion forum. [http://moodle.yorku.ca](http://moodle.yorku.ca)
- This site will be used for posting course information including lecture slides, exam results and supplementary information. Online quizzes will also be completed on Moodle.

**LEARNING OBJECTIVES**

**LECTURE LEARNING OBJECTIVES**

- Explain major concepts, methodologies and issues in microbiology, demonstrating detailed knowledge in certain topics (i.e. planned course topics).
- Gather, review, evaluate and interpret microbiology information (in reviews, primary sources and mass media articles).
- Apply learning from other areas (e.g. biochemistry, genetics) to microbiological problems/situations.
- Solve basic microbiological problems.
- Design simple microbiological experiments.
- Predict the outcome of microbiological experiments.
- Identify problems and suggest possible solutions in terms of microbiology and society.
- Communicate (orally and in writing) microbiological concepts clearly to peers and a scientific audience.
- Discuss and debate current issues relating to microbiology.
- Effectively and collegially work with others in the microbiology laboratory and class setting.
LECTURE TOPICS

Chapters correspond to Madigan, 13th ed. (2012). Coverage of chapters will not necessarily be complete, and the lectures will cover only selected topics from the chapter. We will also not necessarily be working linearly through the textbook. Students are advised to attend all lectures and study those sections of the text relevant to the lecture topics. Midterm and exam questions will relate primarily to the topics covered during lecture but some self study will also be required. Lab material will also form part of the midterm and final exam evaluations.

PLANNED COURSE TOPICS: In the context of particular issues/ cases/ problems, we will explore key aspects of:

- History of microbiology
- Themes in microbiology
- Cell structure/ function of bacteria and archaea
- Bacterial growth
- Environmental factors affecting growth of bacteria and archaea
- Evolution/ systematics/ taxonomy of bacteria and archaea
- Genetics/ genomics of bacteria
- Bacterial regulation/ signal transduction (e.g. chemotaxis, quorum sensing)
- Control of bacterial growth
- Human-microbe interactions
- Epidemiology
- Applied microbiology
- Social impact of microbiology

LABORATORY LEARNING OBJECTIVES:

- The laboratory exercises have been designed to support and develop concepts from the lectures, text and related scientific literature. The exercises will also:
  - Introduce aseptic techniques and basic microbiological methodology.
  - Carry out microbiological laboratory activities with safety, reliability and a good understanding of aseptic technique.
  - Provide opportunities to observe and practice microbiological concepts, and determine the importance of microorganisms in the environment, food industry, and in human health.

Laboratories begin the week of January 20th. Consult the laboratory schedule on the BIOL 3150 Moodle Website to determine when your lab section is scheduled.

Lab coordinator: Shahin Khazai (microlab@yorku.ca).
**COURSE POLICIES (PLEASE READ!)**

**RECORDING LECTURES:**

Photographs or video recordings of any portion of the lectures (including slides) are PROHIBITED. Images and material presented are subject to Canadian copyright law.

Audio recordings are permitted provided they are used ONLY as a personal study aid, and are NOT sold, passed on to others or posted online. Remember the lectures are the intellectual property of the professor and cannot be distributed without permission. Lectures can ONLY be recorded from your seat. No recording devices are permitted at the front of the room, including front table(s), the lectern and computer area.

**E-MAIL POLICIES AND ETIQUETTE:**

I will try to respond to email within two working days, but this is not always possible. I may also answer your question in the next class meeting if appropriate. Questions and answers that I deem of interest to the entire class will be posted on the appropriate discussion board or sent via course announcements if urgent.

Emails that do not meet the requirements below may not be answered:

- Use your @yorku.ca email address when emailing instructors and others within the university. Email from other sources may be filtered out and not reach the intended recipient.
- SUBJECT LINE - Include the course code, course section and brief indication of topic. For example: BIOL3150 – Question Regarding Gram Staining
- **Include your NAME and STUDENT NUMBER at the end of each email.** I work with hundreds of students and the only way I can access your course information is via your student number.
- Remember, you are in a professional environment and thus all your written correspondence, including emails, should be professional. This means full sentences, proper grammar, NO text message lingo.

**MOODLE DISCUSSION BOARDS:**

- Be sure to read the other threads before you post a question to see if your question has already been answered.
- When posting, be clear specific and professional.
- Discussions are monitored. Messages containing personal attacks, inappropriate language, or other disrespectful contents will be removed. Irrelevant material will also be removed. Follow the York University Student Code of Conduct [http://www.yorku.ca/oscr/codeofrr.html](http://www.yorku.ca/oscr/codeofrr.html)
- If you notice any inappropriate threads please contact the Course Director.

*Disclaimer: While Moodle moderators / instructors will attempt to remove (or edit) objectionable/inappropriate material as quickly as possible, it is not always possible to review every post. All posts made on the forums express the views and opinions of the author and not the moderators / instructors (except for posts by these people) and they cannot be held liable.*
EVALUATION: The lectures and labs must be passed independently to pass this course.

Test/exam schedule (to be confirmed in first week of class)

<table>
<thead>
<tr>
<th>Course Component</th>
<th>% of overall course mark</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midterm 1</td>
<td>15%</td>
<td>Tuesday Feb 11&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
<tr>
<td>Midterm 2</td>
<td>15%</td>
<td>Thursday March 13&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
<tr>
<td>Final exam</td>
<td>25%</td>
<td>Will be scheduled by the University Registrar</td>
</tr>
<tr>
<td>Laboratory</td>
<td>35%</td>
<td>Includes 22% from lab assignments/ performance and 13% from questions on Midterms (3% per midterm; 7% for the final exam)</td>
</tr>
<tr>
<td>In class activities</td>
<td>5%</td>
<td>Clicker activities, Online quizzes, Case Studies</td>
</tr>
<tr>
<td>Project</td>
<td>5%</td>
<td>Includes components → Due dates will be announced in class</td>
</tr>
</tbody>
</table>

The course drop date is March 7, 2014

Lab Test dates will be announced in class.
Midterms will include 2 sections:
1. Questions based on the lecture material
2. Lab-related items

- Marks from each section will count towards midterm/final lecture marks and laboratory marks respectively.
- Details regarding the midterm/exam format, project components and mini-assignments and activities will be provided in class. See below for more format details.
- Midterm 1 and 2 will be during class time. The final exam will cover the entire course; dates/times/rooms for exams are scheduled and published by the Registrar’s Office (RO).

THE FORMAT OF MIDTERMS:

- Evaluations will be 2-stage. This means that they will be written in two-parts during the test time.
- Part one will be completed on your own. After the individual portion is done, you’ll get into groups of four (of your own choosing), and complete the same (or very similar) test in a group.
- Why are we doing this? Research shows that this form of assessment results in improved student learning. As well, you’ll work on skills such as working as a group, coming to a consensus as a group, listening skills, discussion skills, the ability to articulate ideas. These are all transferable skills that are desired by employers and professional schools.
- None of this comes at the risk of your mark being lowered. In our 2-stage exams, your individual portion will be worth 85% of your grade for that test while the group mark will be worth 15% of your grade for that test.
- So, your group mark can only improve your grade
- (See Accommodations, p. 7, if you write with Alt Exams.)
MISSED MIDTERMS:

- If a midterm is missed with a valid excuse and documentation (e.g. illness with a doctor’s note), the weight will be distributed between the remaining midterm and the final exam.
- You must contact the course director within two days (48 hours) of the midterm exam and present valid documentation within one week of the exam to qualify for exemption. **IMPORTANT: If you miss because of illness, you MUST see a Physician within 24 hours of the missed test – normally on the same day - so that the Physician can confirm you are too ill to attend the test based on medical examination.** Valid documentation for medical situations consists of an “Attending Physician’s Statement” from the petitions package [http://www.registrar.yorku.ca/pdf/attend_physician_statement.pdf](http://www.registrar.yorku.ca/pdf/attend_physician_statement.pdf) or letter/document of similar detail. **A note that simply says you were seen in the clinic will not be accepted.** Any documentation should cover the date of the missed test.
- Death of an immediate family member: death certificate or letter from the funeral director
- Contact your instructor to determine the appropriate documentation required for other circumstances.
- If appropriate documentation is NOT provided within ONE week, a zero will be earned on the missed midterm.
- **NOT all situations will be accommodated, meaning that a zero will be earned on the missed test or exam.**
- Circumstances not accommodated include, but are not limited to, schedule confusion, sleeping in, missing the bus, personal endeavors (including a job), and busy lives.

MISSED FINAL EXAM:

- If you miss the final exam for a valid reason (e.g. medical emergency, death of an immediate family member) you must request deferred standing and notify the course director within 48 hours of missing the exam. **All students** who miss the final examination must petition if they are seeking deferred standing. No student will be granted deferred standing by the instructor via a Deferred Standing Agreement Form (DSA). Students will have to seek deferred standing by submitting a petition to their home faculty. It will be the Petition Committee’s decision whether deferred standing is granted and, if deferred standing is granted, this committee will also set the deadline for writing the deferred examination.

TEST AND EXAM REAPPRAISALS:

- The format of tests and exams will be a mix of multiple choice and short answer questions. For written answers, if you believe that a written answer on a test was marked incorrectly, you must submit a written rationale that is based on academic grounds* with your test to the Biology Office (FS 108) within **ONE week** of the test being made available to you. **Only those answers written in ink will be eligible for regrading.** **Note: Regrading can result in the grade being raised, confirmed or lowered.**
*Academic grounds mean you make an academic argument for why your answer is correct –
statements such as “this grade does not reflect my knowledge” or “I really studied hard and I deserve a
better grade” are not academic grounds.

2. In order to be fair and consistent with regards to the entire class, individual grades are not
negotiable. **We cannot provide “extra credit” assignments. Marks for assignments and tests will not
be “rounded” or “bell-curved”. Contact the Course Director about marks ONLY if there is a clear error
in your grade (calculation, clerical, etc.) within ONE week of the test score being made available to
you.**

**ACCOMMODATION STATEMENT:**

Students who feel that there are extenuating circumstances that may interfere with their ability to
successfully complete the course requirements are encouraged to discuss the matter with the Course
Instructor as soon as possible (i.e. the 1st week of term). Students with physical, learning or psychiatric
disabilities who require reasonable accommodations in teaching style or evaluation methods are
encouraged to consult with the Office for Persons with Disabilities (OPD) and ensure that requests for
appropriate accommodations are arranged with the course instructor (in the 1st week of term).

Please note: "**Senate policy states that students are expected to monitor their progress in courses,
taking into account their personal and academic circumstances, and to make the necessary
adjustments to their workload to meet the requirements and deadlines.”** (From Senate Policy of
Students' Responsibilities in the Petition/Appeal Processes:
http://www.yorku.ca/univsec/senate/committees/sac/sturesp.htm)

- Please submit CDS Accommodation letters to the Instructor (me) or Undergraduate Office
  (108FS) by January 13th. Please email nivillac@yorku.ca and microlab@yorku.ca to make us
  aware of submissions.
- **If you are writing midterms with Alt Exams:** Because we are using 2-stage tests in this class,
  this means that if you are writing with Alt Exams, you will need to be back in our classroom in
time for the group part of the exam. Typically, the individual part of the exam is allotted
between 35 and 40 mins, so you should schedule with Alt Exams accordingly.
- Please also inform instructor of any religious observance conflicts occurring at any point during
  the semester, for which accommodation will be required, by January 16th, 2013. Please email
  these dates to nivillac@yorku.ca and submit supporting documentation to the undergraduate
  office (108 FS).

**FORUM CODE OF CONDUCT:**

Students are encouraged to participate in the online Moodle forums to discuss course concepts,
organize study groups, and ask questions relating to Biology. The discussion on the forums has typically
been polite and respectful, and we hope this will continue. Students are expected to follow the code of
conduct when using the Moodle forums:

i. Check to see if your question has already been posted. (You can search the forums – you don’t
have to read each post!) If your question hasn’t already been asked, please post in the most
appropriate area. (E.g., if your question is about a lab submission, your post should be in the
“Laboratory” forum.)

ii. Use a clear, informative subject line. Try to be as specific as possible.

iii. Post comments appropriate to the particular discussion. Off-topic posts may be moved or
deleted.

iv. Be respectful. Posts containing personal insults/ attacks/ intimidation/ profanity will be deleted.
(It is also worth remembering that your instructors read forum posts!)

v. Post only material relevant to BIOL 3150. Other posts will be deleted.

vi. While it is appropriate to engage in debate/ discourse on biological topics, such discussions
should be respectful and evidence-based. Evidence should be from trusted sources – consult
with the library if you are not sure! (See: http://www.yorku.ca/webclass/module4a.html)

vii. Any posts which appear to violate our code of conduct may be edited, moved or deleted at the
discretion of instructors/moderators. If posts give indications of violations of academic honesty
or the York University student code of conduct, further action will be taken.

ACADEMIC INTEGRITY

Students are expected to be familiar with and follow York University’s policies regarding Academic
Integrity. Please consult the website below for more details:
http://www.yorku.ca/academicintegrity/students/index.htm