BIOL 3150 4.0 – Microbiology W2009 Course Outline

Calendar description:
Fundamentals of microbiology; microbial organisms; microbe-host interactions; microbial genetics and evolution; microorganisms and human disease; environmental and applied microbiology. Three lecture hours, three lab hours. One term. Four credits. Prerequisites: SC/BIOL 2020 4.00; SC/BIOL 2021 4.00; SC/BIOL 2040 4.00. Degree Credit Exclusion: SC/BIOL 3150 3.00.

Learning objectives:
Upon successful completion of BIOL 3150 4.0, students will be able to:
- explain major concepts, methodologies and issues in microbiology, demonstrating detailed knowledge in certain topics (i.e. listed 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.
- carry out microbiological laboratory activities with safety, reliability and a good understanding of aseptic technique.
- discuss and debate current issues relating to microbiology.
- effectively and collegially work with others in the microbiology laboratory and class setting.

Course director:
Tanya Noel, Room 108 Farquharson Bldg. Email: micro@yorku.ca

Course components:
Class: Mondays 2:30 – 5:30 PM
Laboratory: Tues., Wed. and Thurs. 2:30 p.m. – 5:30 p.m. 117 LB; Wed. 10:00 a.m. – 1:00 p.m.; Tues, Thurs. 6:30 p.m. – 9:30 p.m. 117 LB. Open lab: 138 LB.

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,
- provide opportunities to observe and practise microbiological concepts, and determine the importance of microorganisms in the environment, food industry, and in human health.

Please see the lab manual (available in the bookstore) for more details.

Lab director: Amber Couzens (microlab@yorku.ca).

Website: The BIOL 3150 Moodle site will include announcements, course materials, resources and a discussion forum. http://moodle.yorku.ca or https://moodle08.yorku.ca/moodle/

Text/Readings: Brock Biology of Microorganisms by M.T. Madigan, et al. 12th Edition, Prentice-Hall. (The 11th or 10th Edition is fine.). There will 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. Students are expected to read relevant sections of the text and readings prior to class. Some assignments will also require additional research and reading of scientific literature.
**Evaluation:**

- Midterm 1: 20% * Mar. 30
- Midterm 2: 20% * Apr. 27
- Laboratory: 30% (20% from laboratory submissions/performance; 10% from questions asked on midterms and final exam on lab-related material **)
- Project: 7% (will include components)
- Mini-assignments/Activities: 3%
- Final exam: 20%

* The highest mark from midterm 1, 2, and the final exam will count for 25% of your final grade, with the lowest test worth 15%. (The middle mark remains worth 20%.)

** Tests include 2 sections: [1] questions for the lecture material [2] lab-related items. Marks from each section will count towards midterm/final lecture marks and laboratory marks respectively.

Evaluation may be revised before Mar. 18. Details regarding the midterm/exam format, project components and mini-assignments and activities will be provided in class and in Moodle. The W term drop date is **April. 22, 2009.**

**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 Director as soon as possible.

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 Director early in the term.

**Academic integrity:**

Students are expected to be familiar with and follow York University’s policies regarding academic integrity. Please consult the lab manual and website below for more details:

http://www.yorku.ca/academicintegrity/students/index.htm

**Student information sheet – please see:**


**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
Policies:
1. If you miss a test with a legitimate documented reason, permission may be granted to take a makeup test. Only a "York Attending Physician's Statement Form" (can be downloaded as part of the Petitions Package or obtained from me) OR a similarly detailed doctor's note (i.e. not a form stating that the student visited a clinic) will be accepted for medical excuses. All documentation supporting your excuse for missing a test must be received by me within 2 weeks of the missed test.

2. The tests and final exam will include written questions. If you believe that an answer on a test was marked incorrectly, you must submit your (written) rationale and paper for remarking within 1 week of the test being made available to you (if you completed your test in ink). Note: Remarking can result in the mark being raised, confirmed or lowered.

3. In order to be fair and consistent with regards to the entire class, individual grades are not negotiable. Contact me about marks ONLY if there is a clear error in your mark (calculation, clerical, etc.) as soon as possible at micro@yorku.ca. It is highly unlikely that you will receive a response regarding any other mark-related queries.

4. Students who do not write the final exam, but have completed all midterms, major lab reports and project assignments by the scheduled dates, must contact me for permission to write a deferred exam (i.e sign the Deferred Standing Agreement form). It is Senate Policy that "Normal requests for deferred standing must be communicated within one week following a missed examination, or on the last day to submit course work". Please check out the Registrar's Office Deferred Standing FAQs (http://www.registrar.yorku.ca/services/ds_faq.htm) for more details. Students who have missed one or more midterms (or other major components) will likely be required to petition to write a deferred exam.