

MICB 201: Introductory Environmental Microbiology
2018W Term 2 Course Syllabus

A. Course Faculty

| <u>Name</u> | <u>Office</u> | <u>e-mail</u> | <u>Office hours</u> |
|--------------------|----------------------|----------------------|---|
| Wade Bingle | Wesb 126 | wade.bingle@ubc.ca | Thursdays 9:45-11:00 AM or by e-mail appointment |

B. Student Questions by e-mail

It is important that students maintain an active e-mail address that is registered with UBC for the purpose of communicating with instructors, faculties and Enrollment Services. To ensure a timely response to an e-mail students should include a subject line that includes the course name = MICB 201, their name and their student #.

C. Course Requirements: Prerequisites, Previous Learning and Student Responsibilities

A previous understanding of the following information is important to success in MICB 201:

- The cell concept and the difference between cells and organisms.
- Principles of protein structure and enzyme function.
- Principles of membrane structure, permeability properties and mechanisms of transport across membranes.
- DNA structure, bacterial DNA replication, mutation and DNA repair.
- Bacterial gene structure and gene expression (transcription and translation).
- Principles of bacterial regulation of gene expression at the level of transcription initiation (mal/lac operons).
- Principles of oxidative phosphorylation, photophosphorylation and substrate level phosphorylation.
- The concepts of metabolism, catabolism, anabolism, respiration and fermentation.

This is the background for MICB 201 that should have been learned in BIOL 112 or its equivalent. Although much of this prerequisite content appears in the Custom Text for review purposes, it will not be retaught in MICB 201. Further, for exam purposes it will assumed that students have already learned this content.

D. Textbook

There is no commercial textbook required for MICB 201. MICB 201 uses a Custom e-Text posted on Canvas. Students who wish to consult a commercial textbook should ask the instructor for recommendations.

E. iClickers

iClickers are used to collect student responses to multiple choice questions posed during class. Each student is expected to purchase an iClicker from the UBC Bookstore, keep it in good working order and bring it to every class. Sometime before the end of term students should register their iClicker on the MICB 201 Canvas site (An iClicker does not need to be registered in order for student responses to be collected in class).

F. Canvas

The MICB 201 Canvas site is used to post slides, questions and problems, answers, learning objectives, exam information, important announcements, grades and other items. For this reason students should consult the site on a regular basis to avoid missing important information that can impact their learning and potentially their grade. A plea of ignorance about missing important information posted on the MICB 201 Canvas site will not be received.

G. Calendar Description and Learning Outcomes

The calendar description of MICB 201 is given below:

MICB 201 (3) Prokaryotic diversity and the impact and applications of bacterial and archaeal metabolic, genetic and growth processes in environmental contexts (3-0-0). Prerequisite: One of BIOL 112, BIOL 200, SCIE 001. For students with BIOL 112, CHEM 121 is recommended.

By the end of the course students will be able to

- Demonstrate their knowledge of prokaryotic biodiversity.
- Integrate their new knowledge about prokaryotic biodiversity and its importance with their previous knowledge of the Earth's biodiversity.
- Apply basic information about prokaryotic diversity (metabolic, genetic and growth processes) to the understanding of environmental issues that concern planetary and human health (eg. antibiotic-resistance, pollution).
- Apply information to solve problems (including quantitative problems) that deal with prokaryotic biodiversity and environmental microbiology.

H. Course Topics

0. Environmental Microbiology and MICB 201
1. Introduction to Bacterial and Archaeal Diversity
2. Cell Structure
3. Genomes and Genomics

Midterm Exam

4. Sensing and Responding to the Environment
5. Growth and Environment
6. Nutrition and Metabolism
7. The Heterotrophic Way of Life
8. The Autotrophic Way of Life
9. Bacteria and Archaea on the Farm
10. Biotechnology and Bioremediation

Final Exam

I. Assessment, Evaluation and Grading

The following is a summary of the grade distribution for MICB 201. Grades in MICB 201 are not scaled no matter how low or how high the average overall course grade.

| <u>Component</u> | <u>% Final grade</u> | <u>Content</u> | <u>Date/Time/Room</u> |
|----------------------------------|----------------------|-----------------|---|
| Midterm Exam | 25% | Chapters 0 - 3 | <u>Date:</u> Tues. Feb.12, 2019 <u>Time:</u> 7:00 PM-8:30 PM <u>Location:</u> SWNG 221/222 |
| Final Exam | 50% | Chapters 4 - 10 | TBA by Enrollment Services |
| iClicker Questions (in class) | 10% | | |
| Canvas Assignments (on line) | 15% (5 x 3 %) | | |

Exams

- Exam questions are multiple choice format.
- The Midterm and Final Exams will test different content. This being said, although the Final exam will not explicitly retest the learning of Midterm content, it will pose questions that require students to draw on factual and conceptual information students learned for the Midterm exam. In other words, the Final exam is cumulative.
- The Midterm exam is closed book. However, a memory aid consisting of a single US-letter-sized page is allowed. Anything written on this page (both sides can be used) must be written entirely in a student's own handwriting. No copying and pasting of text or images from other sources is permitted. No additional paper of any kind eg. "Post-it-Notes", can be affixed. Failure to follow these instructions is considered academic misconduct. To ensure compliance with these instructions, student memory aids will be checked during the exam and collected with the exam. If a student wishes, their memory aid will be returned to them after the Midterm exam has been graded.
- The Final exam is **partially** open-book. In addition to a memory aid like the one used for the Midterm, students are also allowed to consult Chapters 5 and 6 of the MICB 201 Custom Text during the exam. To ensure consistency and fairness in an examination situation, bound black and white copies of Chapter 5 and 6 will be made available for students to purchase for a nominal fee covering printing costs and distribution. **Only** these bound B&W copies of Chapters 5 and 6 provided by the Department of Microbiology and Immunology can be used during the exam. Students who do not want to purchase copies of Chapters 5 and 6 are under no obligation to do so. They can still write the Final exam without this exam aid. Additional details about what students are permitted in terms of modifying the pages of Chapters 5 and 6 for exam purposes will be provided during the term.

iClicker

During class, iClickers are used to collect student responses to multiple choice questions posed during class. The primary purpose of iClicker use is to allow students to monitor their own understanding and to give the instructor insight into student understanding. This being said, because both iClicker questions and exam questions are multiple choice students should view each iClicker question as potential **exam practice**.

iClicker questions are marked solely on a participation basis. Students will receive full marks for iClicker participation if they answer 80% of the questions posed. This allows students to miss some questions without penalty because of iClicker malfunction, battery failure, occasional instances of student forgetfulness or tardiness as well as unforeseen absences from class. Because of these concessions, student iClicker responses will not be accepted on paper and iClicker marks will not be adjusted on the basis of student requests linked to any of the reasons stated above. Note: iClicker questions may be posed at the beginning of class, so students should arrive on time to avoid losing participation marks.

iClicker participation marks will only be included in the calculation of a student's course grade if they raise a student's course grade. In other words, a student's course grade will be calculated out of 90 without iClicker and out of 100 with iClicker. Students will receive whichever grade is higher. Thus students can choose whether or not to participate in iClicker activities, i.e., students who choose not to participate do not have to be concerned that this decision will lower their course grade from what it would otherwise be. This being said, participation in iClicker activities is advantageous to students both from a learning standpoint and a grade standpoint so all students are encouraged to do so.

Canvas Assignments

There will be 5 on-line Canvas Assignments. The release and due dates for the first 2 assignments due before the midterm break are given below.

| <u>Assignment</u> | <u>Release date</u> | <u>Due by</u> | |
|--------------------------|----------------------------|----------------------|----------|
| 1 | Jan. 14, 11:59 PM | Jan. 24, | 11:59 PM |
| 2 | Jan. 25, 11:59 PM | Feb. 7, | 11:59 PM |

J. Policy on Missed Exams

The Midterm will be held at night. Students must contact about any legitimate academic conflicts (eg. regularly scheduled classes) with the date and/or time of the Midterm otherwise they must sit the night Midterm exam.

Midterm

Students that miss the Midterm due to illness or family emergency are eligible to write the make-up midterm examination provided they do the following:

- Contact Dr. Bingle by e-mail within 24 hours of missing the exam (please put “Missed Midterm Exam” and a student number in the subject heading)
- Provide valid documentation of illness or family emergency. A doctor's note must explain the reason the exam was missed (i.e., a note that says “was seen in my office this morning” does not explain why

a student was unable to write an exam). This documentation must be provided as a paper copy- not an electronic attachment- and include a student name, student number, and e-mail address.

Final

A Final exam will be held during the sessional exam period in December as scheduled by Enrollment Services. Students should note that this exam could occur any time during the sessional exam period. This means students should not make travel reservations until they know their exam schedule.

Note that instructors are not permitted to rearrange the times of final exams for students other than in a case of exam hardship. An exam hardship is defined as 3 exams within a 24-hour period. For example, Student "A" has an exam at 8:30 am, 12 noon and 7 pm; this is an exam hardship and the 2nd exam would be rescheduled (probably to the following day). An example of what is not an exam hardship: Student "B" has exams scheduled at 8 am, 12 noon, then 8 am the following day. The third exam is in the next 24-hour period.

Students absent during the final exam must report to the Dean's Office as soon as possible and request a form for a Deferred Exams. The Dean's office will require valid documentation to explain an absence from an exam. Deferred Exams are scheduled by Enrollment Services.

K. Studying and Learning Objectives

MICB 201 students are examined by assessing their ability to correctly answer multiple choice questions designed to diagnose whether they have met the course Learning Objectives. **THUS AS A PRIMARY STUDY GUIDE, STUDENTS SHOULD CONSULT THE CHAPTER LEARNING OBJECTIVES POSTED ON CANVAS.**

Just because certain Learning Objectives are not addressed in class does not mean they will not be the focus of exam questions. This means students are expected to meet the Learning Objectives in a number of ways:

- By attending class: MICB 201 is taught in a large class format. Class time will generally be a mixture of instructor-led presentations, iClicker questions as well as problem-solving activities.
- By answering/working the end of Chapter Questions/Problems: These are posted on Canvas.
- Through self-study: Students are expected to independently study some course content not discussed in class.

L. Community and Classroom Civility

To create and preserve a classroom atmosphere that optimizes teaching and learning, all participants share a responsibility in creating a civil and non-disruptive forum. Classroom discussion should be civilized and respectful to everyone and relevant to the topic under discussion. What it comes down to is treating others like you would like to be treated.

Use of electronic devices: Electronic devices may be used in class to view course related materials that are being used in class. Other uses of these devices (eg. watching movies, TV, sports events, playing games, sending/receiving e-mails, text, voice, etc) is not productive use of class time. There is no doubt that using electronic devices for these purposes decreases student attention in class. While students have every right to engage in such counterproductive behaviour if they choose to do so, they do not have right to distract those sitting next to them or wasting class time by asking needless questions they would otherwise have known the answer to if they were paying attention. **With respect to phones in class, the ringer should be turned-off.**

Timeliness: Students are expected to be on time. Class starts at 8 AM. Students should be in their seats and ready to begin class at this time. Class ends at 9:20 AM. Students packing up their things early is disruptive to others around them and to the instructor.

Eating and Chatter: Eating and chatter unrelated to classroom activities can disturb other students and the instructor.

M. Academic Misconduct

The academic enterprise is founded on honesty, civility, and integrity. As members of this enterprise, all students are expected to know, understand, and follow the codes of conduct regarding academic integrity. At the most basic level, this means submitting only original work done by you and acknowledging all sources of information or ideas and attributing them to others as required. This also means you should not cheat, copy, or mislead others about what is your work. Violations of academic integrity (i.e., misconduct) lead to the breakdown of the academic enterprise, and therefore serious consequences arise and harsh sanctions are imposed. For example, incidences of plagiarism or cheating may result in a mark of zero on the assignment or exam and more serious consequences may apply if the matter is referred to the President's Advisory Committee on Student Discipline. Careful records are kept in order to monitor and prevent recurrences.

A more detailed description of academic integrity, including the University's policies and procedures, may be found in the Academic Calendar at <http://calendar.ubc.ca/vancouver/index.cfm?tree=3,54,111,0>.

N. Student Support Services

University students often encounter setbacks from time to time that can impact academic performance. Discuss your situation with your instructor or an academic advisor. For help addressing mental or physical health concerns, including seeing a UBC counselor or doctor, visit:

[**https://students.ubc.ca/health**](https://students.ubc.ca/health)

O. Some Key UBC Dates (see <http://students.ubc.ca/enrolment/dates-deadlines>)

Jan. 2th (Tues.) - First day of classes.

Jan. 14th (Mon.) - Last day for dropping first-term courses without a "W".

Feb. 8th (Fri.) - Last day to withdraw from a 2nd-term course.

Feb. 18 (Mon) to Feb. 22 (Fri.) -Reading Break

Apr. 4th (Thurs.) - Last day of classes.

Apr. 6th (Sat.) to Apr. 29th (Mon.) - Exam period (inclusive).