

BIOC17

Microbiology

2015

-Professor: Dr. Mauricio Terebiznik
-Lab Co-ordinator: Dr. Shelley Brunt

During this course, students will be introduced to general principles of microbiology and laboratory techniques, mainly focussed in *Bacteria*. Topics include: History and relevance of microbiology; Origin of life and evolution of microbes; Microbial classification and phylogeny; Cellular structure, function and replication; Microorganisms in disease. Students will be expected to develop an understanding on these subjects, and be able to use them in class and the laboratory.

-Lectures:

Friday 9:00 to 11:00
Room SY 110

-Office hours: Friday 2-3h, Room SW-535 or ask for an appointment by e-mail: terebiznik@utsc.utoronto.ca. Please use the email only for questions with straightforward answers- questions involving detailed answers will be addressed at office hours.

-Text books:

Lectures: The Pearson custom Library for the Biological Sciences- BIOC17 Microbiology- Available in bookstore

Laboratory: Microbiology: Laboratory Theory and Application by M. Leboffe and B. Pierce. Course costumed edition
Available in bookstore

-Exams and grading :

Midterm exam: 24% of the final grade. The midterm exam includes material from the lectures delivered before the reading week. It doesn't include a Laboratory component. The exam consists of 60-70 multiple choice questions, with 5 possible answers. Duration 2 hours

Final exam: Consist of a laboratory and a lecture component.

The lecture component (35% of the final grade) is not cumulative and consists of 60-70 multiple choice questions with 5 possible answers the questions are

based on the lectures and assigned readings that were not included in the midterm exam.

The laboratory component of the final exam contributes to 15% of the final grade. For the grade distribution for the laboratory, including **lab reports and participation**, please see the **Laboratory information and schedule document**.

Participation in class during lectures will be considered for your final grade.

-Laboratory:

The attendance to practicals is mandatory please see the **Laboratory outline** for information, practicals schedule and more details.

-Lectures:

Outline of the lectures will be uploaded on the intranet one day in advance. Students should print and bring outlines to class to take notes.

Important: The attendance to lectures is not mandatory but highly recommend to succeed in the course. Lectures are not exclusively based on the text book you will need lectures notes and outlines to study for the exams. The text book chapters corresponding to the topics presented in the lectures will be indicated in the lectures handouts and by the figure numbers.

Lectures outline

	TOPIC	
Lecture 1	Introduction to the microbial world. The relevance of microbiology	January 9
Lecture 2	The discovery of microbes to the establishment of a scientific discipline. The golden age of Microbiology. Pure culture.	January 16
Lecture 3	Germ Theory of Diseases. Koch's postulates The origin of Life. RNA word. Microbial evolution, metabolism and diversity. The Endosymbiotic theory	January 23
Lecture 4	Microbial diversity, taxonomy and phylogeny. Universal phylogeny	January 30
Lecture 5	Bacterial cell: Cell wall and membranes: Composition, biochemistry and function.	February 6
Lecture 6	Guest Lecture Discussion for the midterm exam	February 13
Feb 17-21	Reading Week	
Midterm	Exam day TBA	
Lecture 7	Bacterial secretion systems, function and relevance. Bacterial motility, mechanism structure and function.	February 27
Lecture 8	Chemotaxis in bacteria. Quorum Sensing Bacterial cell cycle, cytoskeleton and chromosomal replication	March 6
Lecture 9	Extrachromosomal elements. Horizontal gene transfer, mechanism and relevance.	March 13
Lecture 10	Bacteria in health and disease. Commensal and pathogenic flora. Immune recognition of bacteria.	March 20
Lecture 11	Virus, general characteristics, structure, taxonomy and pathogenesis Guest Lecture: TBA	March 27
Lecture 12	Guest Lecture: Antibiotic Resistance. Discussion for the final exam.	
Final exam	TBA	