

# BIOC17H3

## Microbiology: The Bacterial Cell

### -2016-

Professor: Dr. Mauricio Terebiznik  
Lab Coordinator: Dr. Shelley Brunt

#### - Course description:

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

- **Prerequisite:** [[BIOB10H3 and BIOB11H3] or BIOB10Y3]

Exclusion: (BGYC17H3), MGY377H, (MBY377H)

Breadth Requirement: Natural Sciences

#### - Lectures:

Friday 9:00 to 11:00

#### - Office hours:

**Friday 2-3h or ask for an appointment by e-mail:**

[terebiznik@utsc.utoronto.ca](mailto:terebiznik@utsc.utoronto.ca). Please use the email only for questions with straightforward answers- questions involving detailed answers will be addressed at office hours. My office is located in the Science Wing fifth floor, room 535

#### -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 and lab practicals will be considered for your final grade.

**-Laboratory:**

**The attendance to practicals is mandatory.** Please, for more information please consult the **Laboratory outline**

**-Lectures:**

Slides 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 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 in figure numbers.

**Lectures outline:**

The following outline is tentative and the order the lectures and subjects treated in them could change as the course develops

	TOPIC	
Lecture 1	Introduction to the microbial world. Microbes relevance of microbiology	Jan 8
Lecture 2	The discovery of microbes. The golden age of Microbiology. Germs Theory of Diseases.	Jan 15
Lecture 3	Microbial origin and evolution. The Endosymbiotic theory. Microbial metabolism.	Jan 22
Lecture 4	Microbial metabolism Microbial diversity and phylogeny.	Jan 29
Lecture 5	Bacterial cell: Cell wall and membranes: Composition, biochemistry and function.	Feb 5
Lecture 6	Bacterial motility, mechanism structure and function. Discussion for the midterm exam	Feb 12
	<b>Reading Week</b>	<b>Feb 15-19</b>
<b>Midterm</b>	<b>Exam day TBD</b>	
Lecture 7	Bacterial secretion systems, function and relevance.	Feb 26
Lecture 8	Chemotaxis in bacteria. Quorum Sensing Bacterial cell cycle, cytoskeleton and chromosomal replication	Mar 4
Lecture 9	Extrachromosomal elements. Horizontal gene transfer, mechanism and relevance.	Mar11
Lecture 10	Bacteria in health and disease. Commensal and pathogenic flora. Immune recognition of bacteria.	Mar 18
Lecture 11	Virus, general characteristics, structure, taxonomy and pathogenesis	Mar 28
Lecture 12	Guest Lecture: Antibiotic Resistance. Discussion for the final exam.	April 1
<b>Final exam</b>	<b>TBD</b>	

For UTSC Sessional dates [http://www.utsc.utoronto.ca/~registrar/calendars/calendar/Sessional\\_Dates.html](http://www.utsc.utoronto.ca/~registrar/calendars/calendar/Sessional_Dates.html)