

## MARYVILLE UNIVERSITY COURSE SYLLABUS

### I. Course Information

Semester: Fall 2009

**Biology 104 and 104L INTRODUCTORY MICROBIOLOGY Credit Hours: 4**

Every other week on Tuesday and Thursdays: 6-7 p.m. Lab Section 1  
7-9 p.m. Lecture  
9-10 p.m. Lab Section 2

(Class dates: 01/19, 01/21, 02/02, 02/04, 02/16, 02/18, 03/02, 03/04, 03/16, 03/18, 03/30,  
04/01, 04/13, 04/15, 04/27, 04/29)

Instructor: Tahzeeba Hossain, Ph.D.  
Adjunct Faculty  
Phone: 314-587-1219

E-Mail: thossain@danforthcenter.org or  
thossain@maryville.edu

Office Hours: By appointment

### II. Course Description

This course is a survey of eukaryotic and prokaryotic microorganisms and the biochemical, environmental and medical importance of these organisms. Prerequisites: BIOL-101, BIOL-103, or BIOL-117

### III. Course Objectives

The objective of this course is to provide a basic understanding of microbiology, with an emphasis on methods to prevent and treat infectious diseases. It will provide the knowledge needed to understand and respond to questions regarding clinical microbiology when dealing with physicians, clinical laboratories and patient care. It will also include the information needed to pass the State Board licensure examination.

This course offers students the opportunity to study basic microbiological fundamentals and the health-related applications. In this course the students will gain a basic understanding of the following:

- i. Anatomical and functional differences between prokaryotic and eukaryotic organisms
- ii. Anatomical differences between Gram + and Gram – bacteria;
- iii. Appropriate uses of antimicrobial therapy and other control measures
- iv. Defense mechanisms that the human body utilizes to defend itself against microbes
- v. Strategies used to develop new vaccines and antimicrobials

## IV. Course Content

### Lecture Schedule

<b>Date</b>	<b>Topic</b>	<b>Assigned Reading</b>
<b>Tu, Jan. 19</b>	Microbiology: Then and Now The Chemical Buildings Blocks of Life Concepts and Tools for Studying Microorganisms	Chapter 1 Chapter 2 Chapter 3
<b>Th, Jan.21</b>	Prokaryotic Cell Structure and Function Prokaryotic Growth and Nutrition	Chapter 4 Chapter 5
<b>Tu, Feb. 2</b>	<b>Exam 1</b> Metabolism of Prokaryotic Cells Prokaryotic Genetics	<b>Chapters 1 through 5</b> Chapter 6 Chapter 7
<b>Th, Feb. 4</b>	Gene Transfer, Genetic Engineering, And Genomics Airborne Bacterial Diseases Foodborne and Waterborne Bacterial Diseases	Chapter 8 Chapter 9 Chapter 10
<b>Tu, Feb. 16</b>	<b>Exam 2</b> Soilborne and Arthropodborne Bacterial Diseases	<b>Chapters 6 through 10</b> Chapter 11

## Lecture Schedule (contd.)

<b>Date</b>	<b>Topic</b>	<b>Assigned Reading</b>
<b>Th, Feb. 18</b>	Sexually Transmitted, Contact, and Miscellaneous Bacterial Diseases The Viruses and Virus-like Agents	Chapter 12 Chapter 13
<b>Tu, Mar. 2</b>	Viral Infections of the Respiratory Tract and Skin	Chapter 14
<b>Th, Mar. 4</b>	<b>Exam 3</b> Viral Infections of the Blood, Lymphatic, Gastrointestinal and Nervous Systems	<b>Chapters 11 through 14</b> Chapter 15
<b>Tu, Mar. 16</b>	Eukaryotic Microorganisms: The Fungi Eukaryotic Microorganisms: The Parasites	Chapter 16 Chapter 17
<b>Th, Mar. 18</b>	<b>Exam 4</b> Infection and Disease	<b>Chapters 15 through 17</b> Chapter 18
<b>Tu, Mar. 30</b>	Resistances and the Immune System: Innate Immunity Resistance and the Immune System: Acquired Immunity	Chapter 19 Chapter 20
<b>Th, Apr. 1</b>	Immunity and Serology Immune Disorders	Chapter 21 Chapter 22
<b>Tu, Apr. 13</b>	<b>Exam 5</b> Physical and Chemical Control of Microorganisms Antimicrobial Drugs	<b>Chapters 18 through 22</b> Chapter 23 Chapter 24
<b>Th, Apr. 15</b>	Microbiology of Foods Environmental Microbiology	Chapter 25 Chapter 26

### **Lecture Schedule (contd.)**

<b>Date</b>	<b>Topic</b>	<b>Assigned Reading</b>
<b>Tu, Apr. 27</b>	Industrial Microbiology and Biotechnology	Chapter 27
<b>Th, Apr. 29</b>	<b>Final Exam</b>	<b>Chapters 24 through 27</b>

### **Tentative Laboratory Schedule**

<b>Dates</b>	<b>Topic</b>
<b>Tu, Jan. 19</b>	General Laboratory Procedures and Safety
<b>Th, Jan. 21</b>	General Microscopy
<b>Tu, Feb. 2</b>	Protozoa
<b>Th, Feb. 4</b>	Survey of Molds and Yeasts
<b>Tu, Feb. 16</b>	Aseptic Technique Preparation of Nutrient Broth
<b>Th, Feb. 18</b>	Smear Preparation; Simple Staining
<b>Tu, Mar. 2</b>	Gram Stain
<b>Th, Mar. 4</b>	Endospore Staining
<b>Tu, Mar. 16</b>	Acid Fast Staining
<b>Th, Mar. 18</b>	Isolation of Pure Culture
<b>Tu, Mar. 30</b>	Mystery of the Black Death

## Laboratory Schedule (contd.)

<b>Dates</b>	<b>Topic</b>
<b>Th, Apr. 1</b>	The Effects of Temperature on Growth
<b>Tu, Apr. 13</b>	Evaluation of Antiseptics
<b>Th, Apr. 15</b>	19 Normal Flora of Human Throat and Skin
<b>Tu, Apr. 27</b>	Antibiotic Sensitivity
<b>Th, Apr. 29</b>	Oral Presentations <b>No Laboratory, Finals</b>

**PLEASE READ SECTION INTRODUCTION AND LAB EXERCISES PRIOR TO THE LAB PERIOD\***

## V. Instructional Methods

Lecture and discussion methods will be used.

## VI. Course Requirements

It is expected that the students read the textbook chapters and other materials, relevant to the class objectives in order to be able to discuss/understand the information. Attendance and taking lecture notes are very important to your success in this course. If you are unable to attend class, it is your responsibility to obtain the information from other students. If you are in a university sport or activity that demands numerous absences from lecture and/or lab, please see me during the first week of the semester. Excessive absences may make it necessary for the student to drop this course.

Please turn off cell phones during lecture and lab sessions.

## **VII. Evaluation and Grading**

Five lecture exams and a final exam will be given during this semester. Exams will be composed of multiple choice questions. A grade of zero score will be given for an examination that is not taken. No make-up exams will be given. If a student is unable to take an exam due to a major illness or injury, documented with a letter from a physician, or verifiable serious emergency in the immediate family, the student will be excused from the exam and the final exam grade will be counted twice in determining the final grade. Family vacations or trips are not considered an emergency-please plan accordingly.

### **Exam Points:**

Exam 1, 100 points

Exam 2, 100 points

Exam 3, 100 points

Exam 4, 100 points

Exam 5, 100 points

Final, 100 points

Laboratory Grade, 200 points

Total Points, 800 points

The total number of points accumulated will be divided by the total number of points possible and multiplied by 100 to obtain the student's average. Letter grades for the semester will then be assigned on the following basis: A= 93 % or above; A- = 90-92%; B+ = 87-89%; B = 83-86%; B- = 80-82%; C+ = 77-79%; C = 73-76%; C- = 70-72%; D = 60-69%; F = 59% & below.

## **VIII. Required Textbooks**

Fundamentals of Microbiology, 8th Edition, by Jeffrey C. Pommerville, Jones and Bartlett Publishers.

The Maryville Lab Manual: Biology 104

Microbiology: A Photographic Atlas for the Lab by Alexander and Street.

### **IX. Subject-to-Change**

This syllabus is subject to change at the discretion of the instructor to accommodate instructional and / or student needs.

### **X. Americans with Disabilities Act**

Maryville University supports and complies with the American with Disabilities Act.

Students with special needs should contact the instructor or the Advising Center so that appropriate accommodations can be provided.

**NOTE: This syllabus is subject to change at the discretion of the instructor to accommodate instructional and/or student needs.**