MERCER COUNTY COMMUNITY COLLEGE
SCIENCE AND HEALTH PROFESSIONS DIVISION
COURSE OUTLINE

BIO 215 Principles of Microbiology

Fall 2007

Course Coordinator: Professor D.N. Hilker
Hilkerd@mccc.edu
609-586-4800 (ext. 3367)
Office: MS 122

Instructor: Professor Linda Gaylo
Gaylol@mccc.edu
609-586-4800 (ext. 3380)
Office: MS 118, Ext. 3374
JKC 327, Ext. 3173

3 Credit Hours

3 Lecture Hours

Required Texts:

1. BIO 215 Principles of Microbiology Course Manual, by Professor Diane N. Hilker, 3rd edition

2. Pathology and Microbiology for Mortuary Science, by David Mullins, Thomson Publishers, 2006, ISBN 1-4018-2519-2.

Course Description:

The study of the morphology, taxonomy, physiology, transmission, and control of microbes, especially those which cause disease in humans. The process of infectious disease and defense mechanisms of disease will be covered as well as an introduction to the basic fundamental principles of organic chemistry and biochemistry. This course is designed for funeral education students and is based on the most recent information in the American Board of Funeral Service Education Curriculum Guidelines.

Prerequisites: CHE 100 and BIO 103, BIO 104 or BIO 106

Grading

1. Lecture Exams: 90%

There will be 6 lecture exams given throughout the semester in class. There are no make-up exams and none of the grades obtained on the exams are dropped. All exams must be returned to the instructor after each exam or the recorded grade will be a zero for that exam.

After taking a test, students will be allowed to review their test in class with the instructor. Exams after review must be returned to the instructor or the recorded grade will be a zero for that exam. The total number of points obtained on all 6 exams will be 600.

2. Writing Assignment: 10%

All students are required to complete a writing assignment called "Microbes in the Media." This report will consist of 10 short articles that have been collected throughout the semester from newspapers, magazines, journals or the internet on the field of microbiology.

For each article, the student should write a ½ to 1 page essay either summarizing or, if appropriate, giving an opinion on the topic. The essays are to be typed, understandable, and grammatically correct. The final report must contain both the 10 articles and the 10 essays. This assignment will be worth 100 points. **The due date of this assignment will be on or before Monday, November 26, 2007.**

3. Example on Calculating Grades

A student receives the following numerical grades on their 6 lecture exams: 90, 83, 85, 77, 81 and 88. A grade of a 90 was received on the writing assignment.

a) Total of 6 exams: 504 points

$$\frac{504}{6} \times 90\% = 75.6 \text{ points}$$

b) Writing Assignment: 90 points

$$90 \times 10\% = 9 \text{ points}$$

c) Total: 75.6 and 9 = 84.6 points = B grade

Course Grading:

NOTE: Minimum "C" grade in Funeral Service courses is **75**

100-94	A
93-90	A-
89-87	B+
86-83	B
82-80	B-
79-78	C+
77-75	C
74-60	D
>60	F

Topics Covered in BIO 215

Unit	Topics in Course Manual	*Text Chapter
1	Introduction to Microbiology	20
2	Fungi and Protozoa	28
3	Bacterial Anatomy	21
4	Organic Chemistry	-
5	Biochemistry	-
6	Bacterial Physiology and Growth	22
7	Rickettsia and Chlamydia	26
8	Virology	27
9	Infection and Disease	24
10	Microbial Control	23
11	Bacterial Infections	25

* Pathology and Microbiology for Mortuary Science by D. Mullins.

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Examinations

Exams will be given in class. Exam #6 may be given during Final Exam week. The exact date and time will be announced.

Exam #1	Units 1, 2, 3
Exam #2	Units 4 and 5
Exam #3	Units 6 and 7
Exam #4	Units 8 and 9
Exam #5	Units 10 and 11
Exam #6	Cumulative Final Exam: Units 1 through 11

Attendance

Students are expected to attend class unless they are ill or have some other important reason for not attending. If unable to attend class, please inform the instructor. An attendance sheet will be circulated in lecture. Please print your name and only your name.

Mercer's Academic Integrity Policy

Any student who: a) knowingly represents work of others as his/her own; b) uses or obtains unauthorized assistance in the execution of any academic work; or c.) gives fraudulent assistance to another student is guilty of cheating. Violators will be penalized in accordance with established college policies and procedures.

Library Videotapes/DVDs

Videotapes/DVDs that pertain to the lecture topics are available at the Circulation Desk in the college Library. Students may find them helpful in explaining and reinforcing material covered in class. They include the following videotapes and the units in class that they correspond to:

Unit 1:	Biological Classification
	Classification of Living Things: Monera, Protista, Fungi
	Microorganisms
Unit 2:	Biology of Fungi
	Biology of Protozoa
	Our Living World: Parasites
Unit 3:	Biology of Bacteria
	Germ Genie: The Threat of Biological Weapons
Units 4 & 5:	Basic Chemistry for Biology Students
Unit 7:	Chlamydia: The Hidden Disease
Unit 8:	Biology of Viruses
	A New Hantavirus (Centers for Disease Control)
	Hepatitis A
	Hepatitis C: The Silent Surge
	The Microbiology of AIDS
	Videoguide to HIV and AIDS
	The Emerging Viruses
	Mad Cow Disease
	Ebola: The Plague Fighters
	Influenzae
	AIDS: A Global Crisis
Unit 9:	The Immune Response
	Antibiotics: Growing Resistance
	The Immune System At Work
	War Against Deadly Microbes and Lethal Viruses

Unit 11: Meningitis: The Sudden Illness
Tuberculosis: The Forgotten Plague
Deadly Meat: When a Hamburger Can Kill
Cholera
The Plague Fighters
The Great Plague
Eaten Alive: Micro-Parasites; Invisible Death

Course Objectives

Upon satisfactory completion of this course, students should be able to:

1. Explain basic microbial morphology and physiology.
2. Demonstrate an understanding of host-parasite relationships and interactions, and the requirements for successful parasitism.
3. Describe the fundamentals of the infectious processes and nonspecific and specific defense mechanisms against disease.
4. Explain the methods of transmission of infectious diseases and describe the control procedure of these diseases with special emphasis on protection to the embalmer, the funeral director and the public.
5. Differentiate between the indigenous microorganisms and pathogens and/or opportunists causing disease commonly associated with the human host and dead human remains.
6. State selected facts of general chemistry as a basis for studying organic and biochemistry.
7. Give the essential characteristics of autolysis, hydrolysis, fermentation, and putrefaction in the area of the chemistry of decomposition.
8. Give the essential characteristics of carbohydrates, lipids, and proteins in the area of basic biochemistry.
9. Define organic chemistry and describe the characteristic features of organic compounds.

Student Records

Students may keep track of their progress in this class by recording their results.

Lecture Exams:
Exam #1: _____
Exam #2: _____
Exam #3: _____
Exam #4: _____
Exam #5: _____
Exam #6: _____

Writing Assignment: Grade _____

Note: The writing assignment is due on or before Monday, November 26, 2007.