

**HLC 55 Course Outline as of Spring 2012****CATALOG INFORMATION**

Dept and Nbr: HLC 55                      Title: MEDICAL MICRO  
Full Title: Medical Microbiology  
Last Reviewed: 6/26/2005

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	4.00	Lecture Scheduled	3.00	17.5	Lecture Scheduled	52.50
Minimum	4.00	Lab Scheduled	3.00	1	Lab Scheduled	52.50
		Contact DHR	0		Contact DHR	0
		Contact Total	6.00		Contact Total	105.00
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 105.00

Total Student Learning Hours: 210.00

Title 5 Category: AA Degree Applicable

Grading: Grade Only

Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP

Also Listed As:

Formerly:

**Catalog Description:**

Concepts of classification, physiology, pathogenesis and prevention of human diseases caused by bacteria, fungi, protozoa and viruses specific to nursing science. Emphasis on prevention of nosocomial infections, immunity, theories of diagnosis, treatment and nursing support. Laboratory training in cultivation, identification, and diagnosis. Designed for Health Sciences students.

**Prerequisites/Corequisites:**

Completion of CHEM 60 or higher and BIO 10 or higher.

**Recommended Preparation:****Limits on Enrollment:****Schedule of Classes Information:**

Description: Concepts of classification, physiology, pathogenesis & prevention of human diseases caused by bacteria, fungi, protozoa & virus specific to nursing science. Emphasis on prevention of nosocomial infections, immunity, theories of diagnosis, treatment & nursing support. Laboratory training in cultivation, identification & diagnosis. (Grade Only)

Prerequisites/Corequisites: Completion of CHEM 60 or higher and BIO 10 or higher.

Recommended:

Limits on Enrollment:

Transfer Credit:

Repeatability: Two Repeats if Grade was D, F, NC, or NP

## **ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:**

<b>AS Degree:</b>	<b>Area</b>	<b>Effective:</b>	<b>Inactive:</b>
<b>CSU GE:</b>	<b>Transfer Area</b>	<b>Effective:</b>	<b>Inactive:</b>
<b>IGETC:</b>	<b>Transfer Area</b>	<b>Effective:</b>	<b>Inactive:</b>
<b>CSU Transfer:</b>		<b>Effective:</b>	<b>Inactive:</b>
<b>UC Transfer:</b>		<b>Effective:</b>	<b>Inactive:</b>

**CID:**

**Certificate/Major Applicable:**

Both Certificate and Major Applicable

## **COURSE CONTENT**

### **Outcomes and Objectives:**

STUDENTS WHO SUCCESSFULLY COMPLETE THE COURSE WILL:

1. IDENTIFY THE CONTRIBUTIONS TO MICROBIOLOGY MADE BY VAN LEEUWENHOEK, HOOKE, SEMMELWEIS, PASTEUR, KOCH, LISTER, EHRLICH, JENNER AND FLEMING.
2. LIST THE MAJOR GROUPS OF ORGANISMS STUDIED IN MICROBIOLOGY.
3. COMPARE AND CONTRAST THE FUNCTIONAL ANATOMY OF PROCARYOTIC AND EUCARYOTIC CELLS.
4. DESCRIBE THE VARIOUS ASPECTS OF MICROBIAL METABOLISM.
5. DESCRIBE MICROBIAL GROWTH AND MAJOR INFLUENTIAL FACTORS.
6. ANALYSE THE PROGRESSION OF MICROBIAL GENETICS.
7. EVALUATE THE MECHANISMS OF PATHOGENICITY OF MICROBES.
8. COMPARE SPECIFIC AND NONSPECIFIC DEFENSES OF THE HOST.
9. DESCRIBE THE METHODS OF ACTION OF THE COMMONLY USED ANTIMICROBIAL CHEMOTHERAPEUTIC AGENTS.
10. EVALUATE THE ABILITY OF THE FOLLOWING MICROBES TO BECOME PATHOGENIC AND DESCRIBE THE OUTCOME, TREATMENT AND PREVENTION:
  - A. PROTOZOANS
  - B. HELMINTHS
  - C. FUNGI
  - D. BACTERIA
  - E. VIRUSES
11. DETERMINE HOW MICROBIAL PATHOGENICITY RELATES TO CLINICAL AND COMMUNITY NURSING PRACTICES.

**Topics and Scope:**

- I. BACTERIA AND THE DISEASES THEY CAUSE
  - A. PROCARYOTIC CELLS
  - B. THE BACTERIA
  - C. CLASSIFICATION ACCORDING TO BERGEY'S MANUAL
  - D. PATHOGENIC PROPERTIES OF BACTERIA
  - E. SPIROCHETES
  - F. HELICAL/VIBROID GRAM-NEGATIVE BACTERIA
  - G. GRAM-NEGATIVE AEROBIC RODS AND COCCI
  - H. FACULTATIVELY ANAEROBIC GRAM-NEGATIVE RODS
  - I. ANAEROBIC, GRAM-NEGATIVE, STRAIGHT, CURVED, AND HELICAL RODS
  - J. RICKETTSIAS AND CHLAMYDIAS
  - K. MYCOPLASMAS
  - L. GRAM-POSITIVE COCCI
  - M. ENDOSPORE-FORMING GRAM-POSITIVE RODS AND COCCI
  - N. REGULAR, NON-SPORING, GRAM-POSITIVE RODS
  - O. IRREGULAR, NON-SPORING, GRAM-POSITIVE RODS
  - P. MYCOBACTERIA
- II. FUNGI AND THE DISEASES THEY CAUSE
  - A. EUKARYOTIC CELLS
  - B. GENERAL BIOLOGY
  - C. PATHOGENIC FUNGI
  - D. CHEMOTHERAPEUTICS
  - E. NURSING INTERVENTION
- III. PROTOZOANS AND THE DISEASES THEY CAUSE
  - A. GENERAL BIOLOGY
  - B. PATHOGENIC PROTOZOANS
  - C. CHEMOTHERAPEUTICS
  - D. NURSING INTERVENTION
- IV. HELMINTHS AND THE DISEASES THEY CAUSE
  - A. GENERAL BIOLOGY
  - B. PATHOGENIC HELMINTHS
  - C. CHEMOTHERAPEUTICS
  - D. NURSING INTERVENTION
- V. ARTHROPODS AND THE DISEASES THEY CAUSE
  - A. GENERAL BIOLOGY
  - B. PATHOGENIC ARTHROPODS
  - C. CHEMOTHERAPEUTICS
  - D. NURSING INTERVENTION
- VI. VIRUSES AND THE DISEASES THEY CAUSE
  - A. GENERAL BIOLOGY
  - B. PATHOGENIC PROPERTIES
  - C. TREATMENT CONCEPTS
  - D. PATHOGENIC VIRUSES:
    - 1. PAPOVAVIRUSES
    - 2. ADENOVIRUSES
    - 3. HERPESVIRUSES
    - 4. POXVIRUSES
    - 5. PICORNAVIRUSES
    - 6. TOGAVIRUSES
    - 7. ORTHOMYXOVIRUSES
    - 8. RHABDOVIRUSES
    - 9. REOVIRUSES

10. PARAMYXOVIRUSES
  11. CORONAVIRUSES
  12. RETROVIRUSES
  13. HEPADNAVIRUSES
- E. NURSING INTERVENTION

### Assignment:

#### I. READING ASSIGNMENTS:

STUDENTS WILL BE REQUIRED TO READ AND STUDY THE ASSIGNED CHAPTERS IN THE TEXTBOOK AND OTHER SELECTED READING IN JOURNALS AND HAND-OUTS. THE AVERAGE AMOUNT OF READING SHOULD BE ABOUT 60 PAGES PER WEEK.

#### II. WRITING ASSIGNMENTS:

STUDENTS WILL WRITE A 7 PAGE CASE STUDY ON A PARTICULAR MICROBIAL INDUCED DISEASE, FILL IN APPROXIMATELY 10 PAGES IN THEIR LABORATORY WORKBOOK PER WEEK, AUTHOR A 6 PAGE EPIDEMIOLOGIC INVESTIGATION OF A STUDENT CREATED DISEASE, AND A TWO PAGE CRITIQUE OF A MICROBIAL DISEASE FOUND IN THE POPULAR PRESS.

### Methods of Evaluation/Basis of Grade:

**Writing:** Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

Written homework, Reading reports, Lab reports, Essay exams, Term papers

Writing  
10 - 20%

**Problem Solving:** Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Homework problems, Lab reports, Quizzes, Exams

Problem solving  
5 - 10%

**Skill Demonstrations:** All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

Performance exams

Skill Demonstrations  
15 - 20%

**Exams:** All forms of formal testing, other than skill performance exams.

Multiple choice, True/false, Matching items

Exams  
65 - 70%

**Other:** Includes any assessment tools that do not logically fit into the above categories.

None

Other Category  
0 - 0%

**Representative Textbooks and Materials:**

BASIC MEDICAL MICROBIOLOGY, BOYD AND HOERL, 4TH EDITION;  
LITTLE, BROWN AND COMPANY, 1991.

OR

MICROBIOLOGY, TORTORA, FUNKE AND CASE, 4TH EDITION;  
BENJAMIN/CUMMINGS PUBLISHING COMPANY, INC., 1992.

LAB MANUAL:

MICROBIOLOGY IN PRACTICE, LOIS BEISHIR, 5TH EDITION;  
HARPER COLLINS PUBLISHERS, 1991.