MIDSTATE COLLEGE

411 W. Northmoor Rd. Peoria, IL 61614 (309) 692-4092 (800) 251-4299 Fall 2007

Course Number and Name: BIO 300 Microbiology

Method of Delivery: Classroom

Credit Hours: 4

Course Description: Introduction to the world of microbes. Study will

include the physiology, ecology, and the

identification of microorganisms through a series of investigations. The fundamentals of pathogenic viruses, bacteria and fungi; morphology, virulence, diagnosis and chemotherapy will also be studied.

Prerequisite: None

Text(s) & Manual(s): Microbiology for the Health Sciences

Author(s): Paul G. Engelkirk

Gwendolyn R.W. Burton

Publisher: Lippincott Williams & Wilkins

Edition: eighth edition, 2007 **ISBN#** 0-7817-7195-1

Materials Needed: Colored markers

Flash cards

Topics: 1. Introduction to microorganisms

2. Chemical and genetic aspects of

microorganisms

3. Growth and development of microbes

4. Microbes in our environment

5. Nosocomical infections and infection control

6. Pathogenicity and host defense mechanisms

7. Infectious diseases

Learning Objectives: Upon completion of this class, a student will be able to:

1. Identify and differentiate between prokaryotes and eukaryotes.

2. Compare and contrast virus and bacteria.

3. Compare and contrast algae, protozoa, and fungi.

4. Explain the role of ATP in metabolism and DNA in reproduction.

- 5. Understand the factors that control microbial growth in the lab, the human body and the environment.
- 6. Identify the role of the public health department with microbes.
- 7. Understand the role of microbes in illness and the threat of biological warfare.

Midstate Grading Scale:

90-100	A
80-89	В
70-79	C
60-69	D
0-59	F

Midstate Plagiarism Policy: Matters related to academic honesty or contrary action such as cheating, plagiarism, or giving unauthorized help on examinations or assignments may result in an instructor giving a student a failing grade for that academic effort and also recommending the student be given a failing grade for the course and/or be subject to dismissal.

Plagiarism is using another person's words without giving credit to the author. Original speeches, publications, and artistic creations are sources for research. If you use the author's words in your papers or assignments, you must acknowledge the source. Plagiarism is strictly against the academic policy of the college and is grounds for failing the course. If repeated, plagiarism may result in suspension from the college.

Instructor Information: Sandra Holm

Office Hours: Monday 5:30 p.m.-6:00 p.m.

Telephone #: 800 251-4299 E-mail: sholm@midstate.edu

Participation Requirements:

- 1. <u>Attendance is expected, not suggested.</u> Excessive absence will hurt your performance and ability to pass this class. Excessive absence is 2 or more classes. If for some reason you are not able to attend class, please e-mail the instructor or call Midstate and leave a message for the instructor.
- 2. Students are expected to be on time. If a student must arrive late or leave during class, do so quietly and as unobtrusively as possible.

Policies and Procedures:

- 1. All work is to be completed on time unless unusual circumstances occur. A student will have one week maximum to complete missed assignments or tests.
- 2. If a student misses class, the student is expected to use the course outline to determine what was missed. Class notes, assignments and tests will be placed in the library to collect during the week after the missed class. Students will have 1 week to complete the missed work without incurring a penalty. The grade will be recorded as 0% after the 7 day grace period.
- **3.** Missed tests will be proctored by library personnel in the library.
- **4.** If students are late for class or leave early, the attendance/participation grade will be reduced by half.
- 5. Academic dishonesty is never tolerated and will be referred to the dean.
- **6.** All assignments must be hand written using black/blue ink, unless otherwise specified by the instructor. Work should be portfolio quality. Ragged edged paper is not acceptable.
- 7. All projects must be typed and use appropriate citation notations.
- **8.** Please make certain your cell phone is on "vibrate". Calls can only be returned during the break. No text messaging will be allowed during class. Phones must be turned off during testing.

Methods of Evaluating Student Performance:

Attendance/Participation (10 x 5 points)	50 points
Homework (15 x 10 points)	150 points
Projects (2)	150 points
Chapter Tests	500 points
Final Exam	150 points

Total 1000 points

Course Outline BIO 300 Microbiology Fall 2007

Week 1 Chapter 1, Overview of Chapters 17 & 18

Chapter 1 includes an introduction of microbiology covering topics such as the first microorganisms on earth, earliest known infectious diseases and pioneers in the science of microbiology.

Week 2 Chapter 2

Student will learn to use the metric system to express sizes of microorganisms and study different types of microscopes to view microorganisms in chapter 2.

Week 3 Chapter 3, Lab "Microscope"

Chapter 3 focuses attention on cell structure and taxonomy of eukaryotic and prokaryotic cells.

Week 4 Chapters 4 and 5, Movie "The Great Plague"

Chapters 4 and 5 concentrate on the diversity of microorganisms, in particular acellular infectious agents, prokaryotic and eukaryotic microbes.

Week 5 Chapters 6 and 7, Reports

A discussion of the chemistry of life is covered in chapter 6. Chapter 7 focuses attention on microbial physiology, metabolic enzymes, metabolism, bacterial genetics, genetic engineering and gene therapy.

Week 6 Chapters 8, Reports

Chapter 8 deals with factors that affect microbial growth including encouraging growth of microorganisms in vitro and inhibiting growth of microorganisms in vitro.

Week 7 Chapters 9 and 10, Movie "Antibiotics, The Double-Edged Sword"

Chapter 9 looks at ideal qualities of antimicrobial agents and how antimicrobial agents work. Microbial ecology is discussed in chapter 10.

Week 8 Chapters 11 and 12, Reports

The chain of infection, reservoirs of infection and modes of transmission of diseases are discussed in chapter 11. Chapter 12 is concerned with nosocomial infections and infection control.

Week 9 Chapters 13 and 14, Movie "Bioterror: The Invisible Enemy"

Chapter 13 focuses attention on diagnosing infectious diseases using the pathology department and clinical microbiology laboratory. Chapter 14 covers the pathogenesis of infectious diseases including the four phase of the course of an infectious disease, symptoms of a disease versus signs of a disease and virulence factors.

Week 10 Chapters 15 and 16, Reports

Nonspecific host defense mechanisms, and first and second line of defense against disease are topics covered in Chapter 15. Chapter 16 continues with specific host defense mechanisms against disease, in particular immunity, humoral immunity, cell-mediated immunity, hypersensitivity and immunosuppression.

Week 11 Chapters 17 & 18, Review for Final

Chapters 17 and 18 introduce the student to major viral, bacterial, fungal and parasitic diseases of humans by organ systems.

Week 12 Final Exam

August 27, 2007/revision 2