Course Prefix/Number: **BIO 134**
Course Title: **Fundamentals of Microbiology**
Lecture Hours/Week: **2.0**
Lab Hours/Week: **0.0**
Credit Hours/Semester: **2.0**

Distance Learning Attendance/VA Statement
Textbook Information

COURSE DESCRIPTION

This is a study of the basic fundamental concepts of microbial physiology, human microbial interactions, major systemic diseases, and disease control measures.

COURSE COMPETENCIES

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

Module 1: History and Uses of Microbes

- Outline the basic history of microbiology
- Describe beneficial activities of microbes
- Explain the relationship between microbes and disease

Module 2: Chemistry and Metabolism

- Classify and describe the four major groups of organic molecules
- Relate fundamental principles of chemistry to microbiology
- Explain the importance of enzymes to metabolism
- Differentiate between the three basic types of metabolism: aerobic respiration, anaerobic respiration, and fermentation

Module 3: Structures and Classification of Microbes

- Classify the major groups of microbes
- Compare and contrast the general morphology and characteristics of bacteria, fungi, protists, multicellular parasites, viruses, and prions
- Describe the medical significance of the different groups of microbes
- Describe the techniques, criteria, and processes used to identify and classify microbes
- Recognize guidelines utilized in the visualization of microorganisms
- Compare and contrast the functional anatomy of prokaryotic and eukaryotic cells
- Explain the structure, function, and metabolic characteristics of different types of bacteria

Module 4: Microbial Growth, Death, and Control

- Discuss the nutritional and physical requirements for growth of bacteria
- Differentiate between the phases of the bacterial growth curve

- Recognize physical and chemical microbial control methods, such as disinfection, antiseptics, temperature, and pH
- Classify the different drugs used to treat infections, including antibiotics
- Discuss the causes, prevention, and importance of antibiotic resistance
- Examine the fundamentals of microbial genetics

Module 5: Pathogens and Our Defenses

- Demonstrate a working knowledge of the basic principles of disease and epidemiology
- Explain the human immune response to infection by microorganisms
- Identify strategies used by pathogens to produce infection
- List the major diseases of the body systems
- Identify the pathogens associated with dental caries and periodontal disease.

MINIMAL STANDARDS

Dental hygiene students must achieve 70% or higher accuracy level on course competency assessments in order to receive credit for the course.

COURSE REQUIREMENTS

Attendance Policy

Students are responsible for attending class meetings in the course and for completion of all reading and writing assignments. If a student is absent from a class, it is the student's responsibility to obtain and complete any assignment that may have been made in the missed meeting. Students who are absent from more than 10% of the class time may be withdrawn from the course in accordance with the York Technical College attendance policy.

Withdrawal from a Course

A student may withdraw from a course after the drop/add period *until* midterm with a grade of "W" (withdrawn). Students who withdraw *after* midterm may receive a "W" at the discretion of the instructor, if performance has been satisfactory up to the point of withdrawal. Otherwise, such withdrawals will receive a grade of "WF" (withdrawn/failing).

Student Conduct

Students are required to conform to all conduct codes as specified in the York Technical College Catalog and Handbook. Students found guilty of academic dishonesty, such as cheating or plagiarism, will be given a grade of zero and may be subject to further disciplinary action.

EVALUATION STRATEGIES/ GRADING

The competencies of each module may be evaluated by any of the following methods: examination (written or oral), presentation, written report, written assignment, daily quiz, homework, or other appropriate assessment instruments. The grading scale for the course will be as follows:

A 90 - 100
B 80 - 89
C 70 - 79
D 60 - 69
F Below 60

Course content will count as follows:

Module 1	20% of course grade
Module 2	20% of course grade
Module 3	20% of course grade
Module 4	20% of course grade
Module 5	20% of course grade

The above requirements and topics are standard and required for the course. Individual instructors will provide statements of additional requirements and/or policies.

ENTRY LEVEL SKILLS
The student entering this course must possess reading comprehension and writing skills on a 10^{th} grade level.

PREREQUISITES: None

CO-REQUISITES: None

Disabilities Statement: Any student who feels s/he may need an accommodation based on the impact of a disability should contact the Special Resources Offices (SR) at 803-327-8007 in the 300 area of Student Services. The SRO coordinates reasonable accommodations for students with documented disabilities.

Revised April 2007