COLLEGE OF THE MARSHALL ISLANDS

COURSE OUTLINE

CIP No. 26.0503

SCI 215 Microbiology

Course Description
Involves the study of the structure, requirements for growth, classification, metabolism, and genetics of prokaryotic microorganisms, viruses and several types of eukaryotic species. Methods of control, elimination, and reduction in pathogenic or potentially pathogenic organisms will be emphasized. Infectious diseases will also be studied.

Course prepared by: Liberal Arts and Science  January 2003

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<th>Hours per Week</th>
<th>Number of Weeks</th>
<th>Total Hours</th>
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<td>Lecture</td>
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<td>Clinical</td>
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<td>Seminar</td>
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Total Credit Hours 4

Purpose of Course: Degree Requirement X
Degree Elective
Certification
Developmental
Other

Prerequisite(s) SCI 120-Biology

Last Date reviewed or revised: May 2011

Signature, Curriculum Committee Chairperson 1-4-2012

Signature, Dean of Academic Affairs 1-4-2012

Vice President of Academic and Student Affairs 1/5/12
II. Course Objectives

A. General Outcomes

Students who complete this course will:
1. Develop a basic understanding of a variety of microorganisms (LA 1, 3, 4)
2. Understand the relationship between microorganisms and health (LA 1, 3, 4)
3. Learn techniques for working safely with microorganisms in the lab (LA 1, 3, 4)

B. Student Learning Outcomes

Upon completion of this course, the student will be able to:
1) Analyze a variety of microorganisms
   a. Identify the major differences between prokaryotic and eukaryotic organisms, viruses, and prions
   b. Describe different types of microbial metabolism and the requirements for growth
   c. Explain the most common types of microbial reproduction.
   d. Identify the role of mutations in driving microbial evolution
   e. Explain the basics of biotechnology and recombinant DNA techniques
2) Analyze and recognize the role that microorganisms have played in human history, health, and mankind's efforts to control the spread of pathogens.
3) Demonstrate proper use of equipment, techniques, and procedures commonly used to study microorganisms

III. Course Content

This course develops a working knowledge of microorganisms and their effects on human health.

1. History, tools, and techniques used to study microorganisms
2. Cell structure and taxonomy of prokaryotes and eukaryotes
3. Diversity of microorganisms
4. Factors that limit or increase the growth of microbes
5. Methods used to control the growth of microbes
6. Where microbes live and how they get there
7. Causes of microbial pathogenicity, where and when diseases occur and how they are transmitted (epidemiology)
8. How communicable diseases can be prevented from spreading
9. Some of the major infectious diseases of humans
10. Human defenses against infectious diseases

IV. Methods of Instruction

1. Lectures and discussions
2. Overhead/LCD and audio visual presentations
3. Reading and writing assignments
4. Microbe case files
5. Computer tutorials
6. Weekly lab activities and experiments
V. Equipment and Materials

1. Laboratory equipment for conducting microbiology labs
2. Sympodium/Smart technology system
3. Classroom response system
4. Computers
5. Videos and computer tutorials

VI. Suggested Methods of Evaluation

1. Exams
2. Laboratory Practicals
3. Quizzes
4. Laboratory science notebooks
5. Problem-based, microbial case files
6. Undergraduate research projects

Letter grades will be assigned per CMI Grading System.
# Course History Summary

**Course Number:** SCI 215 *Microbiology* (4cr)

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- *Remove MATH 96 from Pre-req*
- *Causes Δ in NURS Program Sheet*