SYLLABUS BIOL 2900 C– COURSE No. 81604, Fall, 2009

Course: Microbiology in Health and Disease Instructor: Prafull C. Shah

Email: pcshah@valdosta.edu **Office Hours: Before or after Class or by appointment**

Class: Wednesdays and Thursdays 5: 30 P.M. – 6:45 P.M. Room 2022 Bailey Science Center

Laboratory: Wednesdays and Thursdays 6:55 P.M. – 8:20 P.M. Room 2068 Bailey Science Center

COURSE OBJECTIVES:

With a focus on healthcare majors, the objectives of this course are:

(a) To introduce students to microbiology and the vital role microorganisms play in the well-being of higher forms of life, as well as to cause diseases, mostly as opportunists,
(b) To learn various groups of microorganisms and what makes them infectious,
(c) To learn most common infections caused by microorganisms, and
(d) To learn the preventive and curative measures against infections.

SPECIAL NOTES TO STUDENTS:

1. In order to respect the privacy of each student, exam scores and grades will not be posted, given out by telephone, or sent to students by email.
2. Students are advised to consult the VSU Student Handbook, Undergraduate Catalog, Fall Semester Calendar, Schedule of Classes, & Registration Guide for information about VSU policies and procedures regarding registration, drop/add, and withdrawal. Students are not permitted to withdraw after midterm except in cases of hardship.
3. Students requesting classroom accommodations or modifications because of a documented disability should contact the Access Office for Students with Disabilities, 1115 Nevins Hall.
4. Cell phones are to be turned off during classes and examinations.
5. Students are responsible for reading and following the Biology Department policy on plagiarism.
6. Since important concepts are explained in the classroom, missing classes may seriously impact grades.
7. Changes to this syllabus may be made during the Semester.

Grades:

(1) There will be periodic quizzes, a mid-term examination and a final examination. Quizzes and exam. typically consist of multiple choice, matching, fill-in blanks type of questions, including some open book, However, students may be challenged with questions that may require creative thinking and true understanding of concepts in order to answer them correctly.
(2) In addition, there may be special assignments and projects which will be announced in the class.
(3) Vocabulary, spelling and pronunciation of medical terms may be important parts of assignments, quizzes and examinations.
(4) Lab. portion of testing will be merged with lectures.
(5) Periodic quizzes will be worth a total of 200 points.
(6) Mid-term exam. will be worth 300 points.
(7) Special projects or presentations will be worth 100 points.
(8) Final examination will be worth 400 points.
(9) Between quizzes, mid-term, final exam. and special projects and presentations, each student can earn a maximum of 1000 points.

Grading Scale:

Grade A = 90 -100% or between 900 - 1000 points
Grade B = 80 - 89% or between 800 - 899 points
Grade C = 70 – 79% or between 700 -790 points
Grade D = 60 – 69% or between 600 - 690 points
Grade F = Less than 60% or 599 or less points

Week 1		
Subject(s)		Learning Objectives
Class	Introduction and General course information Microbial World	History of Microbiology, role of microbes in nature, well-being of other living things, science, health and diseases
Lab.	Introduction to Laboratory safety, handling of microscope	
Week 2		
Class	The Molecules of Life	Characteristics of prokaryotic and eukaryotic cells Principles of microscopy, use of microscopes Distinction of Gram positive and Gram negative bacteria
	Microscopy and Cell Structure	
Lab.	Hand Hygiene, Use of Microscope, Practice of focusing	
Week 3		
Class	Dynamics of Procaryotic Growth	Nutritional and environmental requirements for microbes growth
Lab.	Microscopic Study of Pond/Swamp Water – Protozoa, Algae, Cyanobacteria Wet mounts	
Week 4		
Class	Control of Microbial Growth Microbial Metabolism and Reproduction	How microbes grow and reproduce. Physical, chemical and biological methods of controlling microbial growth.
Lab.	Perform and analyse cultures from various sources	
Week 5		
Class	Host Defenses Against Infections	Natural and induced defenses against microbial invasion
Lab.	Simple Stain of various Microbes – Bacteria, Yeast	
Week 6		
Class	Host – Microbe Interactions	Saprophytic, symbiotic, and parasitic relationships between microbes and humans
Lab.	Gram Stain	
Week 7		

Class	Role of Bacteria in Health and Disease – General Classification Aerobic Gram Positive Cocci	Common bacterial infectious agents Introduction to: Staphylococci Streptococci Pneumococci
Lab.	Manipulation of Microorganisms – Aseptic Techniques Primary, Differential, Selective, Enrichment Culture Media	
Week 8		
Class	Role of Bacteria in Health and Disease – Aerobic, Enteric Gram Negative Bacilli	Introduction to: Escherichia, Salmonella, Shigella, Vibrio, etc.
Lab.	Methods of sterilization and Sterility Check	
Week 9		
Class	Role of Bacteria in Health and Disease – Aerobic, non-enteric, Gram negative Bacilli	Introduction to: Pseudomonas, Haemophilus, Pasteurella, etc.
Lab.	Identification of Aerobic Gram Positive Cocci	
Week 10		
Class	Role of Bacteria in Health and Disease – Other aerobic bacteria of clinical significance	Introduction to: Campylobacter, Neisseria, Treponema, Borrelia, etc.
Lab.	Identification of Aerobic Gram Negative Bacteria	
Week 11		
Class	Role of Bacteria in Health and Disease – Anaerobic and other miscellaneous bacteria	Introduction to: Clostridia, Bacteroides, Fusobacterium, etc.
Lab.	To be announced	
Week 12		
Class	Antimicrobial Medications	Introduction to biological and chemical agents used to treat infections
Lab.	Control of Microbial Growth and Measurement of Inhibition – Antimicrobial Susceptibility Testing	
Week 13		
Class	Antimicrobial Medications (continued)	Introduction to biological and chemical agents

		used to treat infections
Lab.	To be announced	
Week 14		
Class	Skin and Wound Infections Respiratory Infections	Impetigo, deep wounds, sore throat, pneumonia, etc.
Lab.	Diagnosis, Interpretation, Treatment and Monitoring of Infectious Diseases through Laboratory Testing	
Week 15		
Class	Genitourinary Infections Digestive System Infections Nervous System, Blood and Immunodeficiency Infections, Other Syndromes	Sexually transmitted infections, diarrheas, meningitis, AIDS, etc.
Lab.	Evaluation and interpretation of Laboratory Reports	
Week 16		
Class	Epidemiology, Emerging Diseases and Public Health Role of Microorganisms in Environment, Food and Biological Warfare	Challenges posed by MRSA – “The Superbug”, CDAD, EHAC and other emerging, important infections and how to control them Introduction to biological weapons of warfare
	Last week of Class – Review & Class Picture	
Lab.	Visit to a Clinical Testing Laboratory in Working	
Week 17		
	Final Exams	
	End of Semester	