SYLLABUS
BIOLOGY 6506
FOOD AND WATER MICROBIOLOGY

CREDIT: 3 semester hours; lecture and lab

INSTRUCTOR: Dr. Joe Graves – work: 925-7291; home: 924-7072; e-mail: jgraves@mc.edu
PREREQUISITES: Graduate standing.

COURSE DESCRIPTION: A graduate-level course including considerations and significance of various microorganisms in food, drinking water, surface water, and wastewater; current standard procedures for detecting these microorganisms; and methods for treatment, control, or elimination. The course will include laboratory sessions on techniques pertinent to food and water microbiology.

COURSE RATIONALE: This course is intended to provide specialized knowledge on these aspects of environmental microbiology and to produce well-trained biologists able to function in professional and leadership roles in these fields.

LEARNING OBJECTIVES:
Students will learn pertinent facts concerning the role of microorganisms in food preservation, spoilage, and food poisoning.
Students will learn the role and significance of various indicator and disease-producing microorganisms in food, water, and wastewater.
Students observe standard procedures to detect microorganisms in food , water, and wastewater.
Students will understand techniques used to control or eliminate food & water microorganisms.

ACADEMIC INTEGRITY / HONESTY: " Mississippi College students are expected to be scrupulously honest. Dishonesty, such as cheating or plagiarism, or furnishing false information, including forgery, alteration, or misuse of University documents, records, or identification will be regarded as a serious offense subject to severe penalty, including, but not limited to loss of credit and possible dismissal. Since space is limited, students during exams are expected to adhere to MC's honor system.

COURSE TOPICS:
Growth of microorganisms, microbial nutrition, artificial culture media.
Effects of pH, moisture, and temperature.
Microbial control by chemical and physical agents.
Food spoilage.
Microbial food poisoning.
Fermentation.
Microbial quality and safety of foods.
Microbial quality of water and wastewater.
Culture media for water and wastewater.
Measuring microbial populations in water and wastewater.
ID and confirmation procedures for water pollution bacteria, viruses & parasites.

METHODS OF INSTRUCTION: This course will consist of lectures accompanied by overheads, videotapes, etc., and group discussions of pertinent topics. Selected laboratory exercises will include methods for detecting and enumerating significant microorganisms in food and water.

REQUIRED PRACTICES: Students will be expected to read applicable chapters of the texts, take notes on the material provided in lecture, and actively participate in lab exercises.

INSTRUCTIONAL MATERIALS / TEXTS:
Food Microbiology, Montville & Matthews, 3nd ed.
Other lecture and lab materials to be provided by instructor

EVALUATION OF STUDENT PROGRESS: Formal student evaluation will include written midterm exam and a final exam. Each exam will include a lecture and lab demo components. Exams will be averaged and will make up the final grade. There is no provision for extra credit.

Grading :	A	90 – 100
	B+	87-89.9
	B	80 - 86.9
	C+	77-79.9
	C	70 - 76.9
	D	60 - 69.9
	F	below 60

ATTENDANCE: "Class attendance is an essential part of university education, and students are expected to attend regularly and punctually all classes and laboratories for which they are registered. .....a student receives a grade of F in a course immediately upon accumulating absences totaling 25% of the course."

Makeup of missed exams requires sufficient (usually written) excuse, and makeups must be as soon as possible after the missed exam. Makeups are usually comprised of essay/discussion questions.

All phones should be turned off during lectures (including text messaging). Private conversations are very distracting to adjacent students and the instructor. If necessary, they should take place outside the classroom. The instructor reserves the right to warn or eject offending students.

INSTRUCTOR AVAILABILITY: Your professor is available after class or by phone for brief consultations and explanations of subject matter. If demand is sufficient, voluntary review sessions can be scheduled.

SPECIAL ACCOMMODATION: Students needing special accommodation due to learning, physical, psychological, or other disabilities should contact the Director of Student Counseling, Mississippi College.

Food & Water Microbiology Tentative Schedule Summer, 2013

M 7/1	Introduction/Micro Review
T 7/2	Food Micro - Chap 1-3 Last day to drop w full tuition refund.
W 7/3	Chap 4-7
T 7/4	HOLIDAY
F 7/5	Chap 14,9,12
M 7/8	Chap 18,15,17,13
T 7/9	Chap 16,10,11,8
W 7/10	Chap 19-21
T 7/11	Chap 22-24
F 7/12	Chap 25-29
M 7/15	Milk Microbiology
T 7/16	Review
W 7/17	Midterm Exam - Final drop day
T 7/18	Food Cases Studies
F 7/19	" (cont.)
M 7/22	Microbial Pathogens in Water
T 7/23	Indicator Microorganisms
W 7/24	Microbiology of Surface Water/Drinking Water/Bottled Water
T 7/25	Micro. Of Marine Waters/Toxic Algae/Swimming Pools, Whirlpools, Hot Tubs
F 7/26	Testing Methods – Drinking Water & Surface Water
M 7/329	Regulatory Standards & Enforcement Agencies
T 7/30	Drinking Water & Sewage Treatment
W 7/31	Case Studies/Review
T 8/1	Final Exam