Biology 31 Semester Fall 1999.

Elizondo Reedley Community College.

I. Catalog Description : Microbiology, 4 units, 2 hours lecture, 6 hours lab,including classification, morphology,identification and physiology of microorganisms. Includes field trips.

II. Prerequisites :Biology 1 and Biology 20; High school chemistry or equivalent.

III. Required texts:
A. Tortora, Gerard J.et al., Microbiology,Sixth Edition,1997. Benjamin/Cummings Publishing Company, Inc. (page numbers are to be included when using books as a reference for the term paper)
B. Johnson, Ted R. and Christine L. Case, Laboratory Experiments in Microbiology,Fifth Edition,1998. Benjamin/Cummings Publishing Co.

IV. Other required materials:
A. White Laboratory Coat
B. One small towel or two pot holders for handling hot equipment in lab
C. Assorted colored pencils
D. Six scantron mini-bluebook answer sheets (form 886).

V. Course Objectives:
A. To have a basic understanding of microbes as living organisms.
B. To become familiar with laboratory techniques necessary to work with microorganisms.
C. To understand and practice aseptic technique.
D. To become familiar with microbial morphology, classification, and identification.
E. To understand the role of microorganisms in health and disease and mechanisms used to control microbial populations.

VI. Student Projects:
A. Students will be required to complete a reading project. Specific details will be given to you in a separate handout.
B. A research paper on a subject in microbiology, chosen by the student, will be required. Specific details will be given to you in a separate handout.

VII. Evaluation of Student Progress

A. Lecture Points

1. Three midterm exams		300
2. One final examination	150	
3. Lecture quizzes/homework (approx)		50
4. Reading Assignment & Term Paper	160	
Total Lecture Points (approx)	660	

B. Laboratory Points

1. Two laboratory examinations	200
2. Laboratory quizzes (approx)	60
3. Human Pathogens	50
4. Unknowns	25
Total Laboratory Points (approx)	335
Total Points For Semester	995

C. Grades will be assigned on a percentage basis.
A=100-90% B=89-80% C=79-70% D=69-60% F=less than 60%

D. ANY STUDENT DOING UNSATISFACTORY WORK BEFORE THE NINTH WEEK MAY BE DROPPED FROM THE COURSE AT THE DISCRETION OF THE INSTRUCTOR.

VIII. Attendance Policy

A. Students are required to attend all class sessions!

B. If a student misses more than 8 class hours during the semester, (and before the ninth week of class) the student will be dropped from the class. It is a good idea to save your 8 hours of "excused" absences in case of illness, family emergency, subpoenaed court appearance, etc. In case of a prolonged illness, you should contact your instructor at 638-3641 ext. 3715. It is not necessary to phone for a one day absence if you have not exceeded the limit.

C. Plan your schedule so that you will arrive to class on time. This is particularly important with regard to the laboratory, as explanations are usually given during the first 10-30 minutes of the lab period. You are required to read the lab exercise before the lab period in which it is to be performed.

D.No formal break period is scheduled in the labs. If it is necessary to leave and visit the lavatory, drink water, rest, smoke, or whatever, you will have to fit it in as best you can with your lab work schedule.

E. If you should decide to drop this course for any reason it is your responsibility to make the drop official. This can be done by requesting a drop in person, or by filling out the appropriate form in the admissions office. Failure to officially drop this course could result in receiving the grade of "F".

The drop deadline for this semester is _____.

IX. Student Conduct in the Laboratory

A. Students are to maintain clean areas at all times. Keep unnecessary books, papers, purses, etc., off the laboratory tables.

B. Disinfect laboratory tables at the beginning and at the end of every laboratory period.

C. Aseptic techniques are to be followed at all times.

D. Lab coats are to be worn in the lab at all times. Students with long hair must keep it contained with pins, clips, headbands, or rubberbands, etc. so that it will not sweep across desks, bunsen burners, and/or microscopes.

E. Caution must be exercised in handling stains and other reagents as they may be harmful to clothing, skin, eyes, floor, etc.. Safety glasses must be worn when handling and using caustic or other dangerous chemicals.

F. Any spills of living organisms must be reported to your instructor IMMEDIATELY!

G. Food and drinks are NOT allowed in the laboratory! Never eat or drink in the laboratory and avoid putting objects in your mouth. Some organisms used in class are potentially pathogenic or are pathogenic.

H. Wash your hands thoroughly before you leave the laboratory.

I. Adhere to the Reedley Community College rules of student dress and conduct.

X. MISCELLANEOUS 4

A. Laboratory and Field Trip Safety
   1. Follow directions in the student conduct section.
   2. Report all accidents or injuries immediately.
   3. Wear appropriate clothing as indicated above and on field trips wear appropriate footwear. This would be oxford or walking shoes or tennis shoes.
      NO SANDALS OR OPEN TOED LOOSE FOOTWEAR, OR SHORTS WILL BE ALLOWED IN CLASS OR ON FIELDTRIPS.

B. If you should experience difficulty understanding the material presented in the class or lab, please see your instructor at the earliest possible date, either during scheduled office hours or by appointment.

Office: LS 5 OFFICE HOURS: MW 9:00 - 10:00 AM
TH 11:00-12:00 noon

XI TENTATIVE LECTURE SCHEDULE

WEEK	DAY	LECTURE TOPIC	READING ASSIGNMENT
1	TU	Introduction - Syllabus	Ch. 1
	TH	Historical Developments in Microbiology	
2.	TU	Microscopes & Staining Techniques	Ch. 3
	TH	Anatomy of Bacteria	Ch. 4
3.	TU	Microbial Growth I	Ch. 6
	TH	Microbial Growth II	
4	TU	Lecture Exam 1 - Ch. 1, 3, 4, and 6.	
	TH	Physical Control of Microbial Growth	Ch 7
5.	TU	Physical Control of Microbial Growth	Ch. 7
	TH	Chemical Control of Microbial Growth	Ch. 7
6.	TU	Important Biological Molecules	Ch. 2
	TH	Microbial Metabolism I	Ch. 5
7.	TU	Microbial Metabolism II	Ch. 5
	TH	Microbial Genetics I	Ch. 8

8.	TU	Microbial Genetics II	Ch. 9
	TH	Classification of Microorganisms	Ch.10
9.	TU	Lecture Exam 2 Ch. 7, 2, 5, 8, 9	
	TH	Bacteria	Ch.11
10.	TU	Fungi & Protozoa	Ch.12
	TH	Viruses I	Ch.13
11.	TU	Viruses II	Ch.13
	TH	Principles of Disease & Epidemiology	Ch.14
12.	Tu	Lecture Exam 3- ch.10, 11, 12, 13 & List of Diseases	
	TH	Mechanisms of Pathogenicity	Ch.15
13.	TU	Non-Specific Defenses of the Host I	Ch.16
	TH	Non-Specific Defenses of the Host II	Ch.16
14.	TU	The Immune Response I	Ch.17
	TH	The Immune Response II	Ch.17
15.	TU	The Immune Response III	Ch.17
	TH	Microbiology of Water	Ch.27
16.	TU	Microbiology of Water	Ch.27
	TH	Antibiotics I	Ch.20
17.	TU	Antibiotics II	Ch.20
	TH	Review for Final - Ch. 14, 15, 16, 17, 27, 20 and Human Pathogens	

18. FINAL EXAMINATION - _____

Chapters: 21, 22, 23, 24, 25, and 26. Read for content. This material will NOT be covered in lecture. You will be tested on this material in Examination 3 and on the Final Examination. I would suggest that you begin reading this material at your earilest convenience. Further instructions will follow in lecture.

XII. TENTATIVE LABORATORY SCHEDULE 6

Week	Day	LAB EXERCISE	READING ASSIGNMENT
1	TU	Syllabus- handouts; Microscopy	
	Th	Microscopy and transfer practice	Ex 1
2	TU	Microscopic Measurements	
	TH	Viewing Live Microorganisms	Ex 2
3	TU	Simple Staining and Making Media	Ex 3
	TH	Negative Staining	Ex 4
4	TU	Gram Stain	Ex 5
	TH	Acid-Fast and Endospore Staining	Ex 6 & 7
5	TU	Morphologic Unknown	Ex 8
	TH	Environmental Microorganisms	Ex 9
6	TU	Aseptic Transfer of Bacteria	Ex 10
	TH	Isolation of Bacteria by Dilution and Streak Plate Techniques	Ex 11 & AppB
7	TU	Carbohydrate Metabolism	Ex 13
	TH	Fermentation of Carbohydrates	Ex 14
8	TU	Differential/Selective Media	Handout
	TH	Laboratory Exam #1	Ex 1-14
9	TU	DNA Isolation	Handout
	TH	Protein Metabolism I & II	Ex 15 & 16
10	TU	Respiration - nitrate, oxidase & Catalase Tests &	Ex 17&18 Enterotube
	TH	Oxygen Requirements and PH/Osmotic Pressure	Ex 19 & 21 App. C
11	TU	Physical Methods of Control: Heat	Ex 22
	TH	Ultraviolet Radiation	Ex 23
12	TU	Disinfectants and Antiseptics	Ex 24
	TH	Chemical Methods of Control: Antimicrobial Drugs	Ex 25
13	TU	Hand Washing	Ex 26
	TH	Yeasts and Molds	Ex 33 & 34
14	TU	Protozoans	Ex 36
	TH	Flora of Mouth, Throat & Skin	Ex 45, 46,&47

15	TU	Isolation of Unknowns	Ex 32
	TH	Isolation of Unknowns	Ex 32
16	TU	Isolation of Unknowns/Reports/Human Pathogens	
	TH	Laboratory Exam #2 - Exercises 15-47	
17	TU	Field Trip to Reedley Wastewater Treatment Plant	
	TH	Unknowns/Reports/Clean-Up	