MICR 302, PATHOGENIC BACTERIOLOGY, WINTER 2010

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LECTURE SCHEDULE

Date	Topic	Reading*
Jan. 5 -	Introduction; Micrococcaceae	Chp 14
7 -	Micrococcaceae; Streptococcaceae	Chp 14, 15
12 -	Streptococcaceae	Chp 15
14 -	Neisseriaceae; Enterobacteriaceae*: Escherichia, Shigella*	Chp 18, 20
19 -	*Salmonellea, Citrobacter, Edwardsiella, Klebsiella*	Chp 20
21 -	*Enterobacter, Serratia, Proteus, Yersinia*	Chp 20
26 -	Vibrionaceae; Aeromonadaceae; Campylobacteriaceae	Chp 21
28 -	**EXAM I (100 points – Intro. thru *Yersinia ; C.S. #1-3*)**	
Feb. 2 -	Nonfermenters; *Pasteurella*	Chp 22, 19
4 -	*Bordetella; Francisella; Brucella*	Chp 19
9 -	*Bacillus*; *Corynebacterium; Listeria; Erysipelothrix*	Chp 17, 16
11 -	*Nocardia; Actinomyces; Propionobacterium*	Chp 17, 23
16 -	New Molecular Methods of Diagnosis	Chp.11
18 -	Mycobacteriaceae	Chp 26
23 -	**EXAM II (100 points – Vibrio thru New Molecular Methods; C.S. #4-6)**	
25 -	Anaerobes: *Bacteriodes; Clostridium;* Cocci	Chp 23
Mar. 2 -	Spirochaetales; *Gardnerella*	Chp 24, 38
4 -	*Rickettsia; Chlamydia*	Chp 40, 25
9 -	*Legionella*	Chp 19
11 -	*Mycoplasma; Ureaplasma*	Chp 25
Mar. 16 -	**FINAL EXAM, Tuesday, 8:00-10:30am (100 points – Mycobacteriaceae thru *Legionalla*; C.S. #7-10)**	

*Reading in *Textbook of Diagnostic Microbiology, Third Edition*, by Connie R. Mahon, DC Lehman, G. Manuselis (2007)

Additional **Case Study** reading available in *Medical Microbiology, Sixth Edition* by P. R. Murray et al. (2009) on Limited Loan in Kennedy Memorial Library

Course Prerequisite: The completion of MICR 301 (General Medical Microbiology) with a

grade of C or better.
Class Website: http://instructional1.calstatela.edu/mle28/

Website of Interest:

American Society of Virology (ASV): http://www.asv.org/
American Society of Microbiology (ASM): http://www.asm.org/
Centers for Disease Control and Prevention (CDC): http://www.cdc.gov/
World Health Organization (WHO): http://www.who.int/

Objectives: In this course students are to learn the characteristics of the clinical significant bacteria and the clinical presentation of their compromised hosts. The methods for identifying clinical isolates, characteristics of laboratory media, and tests used for identification of individual isolates will be stressed.

Attendance: Lecture attendance is highly recommended with the understanding that all information presented is the student's responsibility. **Laboratory attendance is mandatory.** Each laboratory absence requires 24 hours notice to the instructor prior to the laboratory session missed. Laboratory make-up work is the responsibility of the student.

Student Evaluation and Grade Assignment: Course grades will be determined according to the percentage of total points earned: 100 – 90% = A; 89 - 80% = B; 79 - 70% = C; 69 - 60% = D; below 60% = F. There are 800 total points possible during the quarter:

Lecture:	Jan. 28	- 100 points Lecture Exam I
	Feb. 23	- 100 points Lecture Exam II
	Various dates	- 100 points Case Study Written Reports
	Mar.16	- 100 points Final Exam
	TOTAL	***= 400 points***
Laboratory:	Jan. 21	- 20 points Quiz
	Jan. 14-Feb.9	- 80 points total for Group Unknown Reports
	Feb. 2	- 100 points Midterm Exam
	Feb. 18	- 20 points, Fecal Unknown Report due
	Feb. 23	- 20 points, Blood Unknown Report due
	Mar. 2	- 20 points Quiz
	Mar. 11	- 40 points, Molecular Unknown Report due
	Mar. 11	- 100 points Final Exam
	TOTAL	***= 400 points***

IMMUNIZATIONS: Students are encouraged to check their immunization schedule (DPT, Typhoid, Meningitis, Bacterial pneumonia); if it has been over 5 years you are advised to have current immunizations. All organisms used in the laboratory are virulent pathogens and while laboratory accidents are rare, it is well to be protected.

ACADEMIC HONESTY: Students are expected to read and abide by the University's Academic Honesty Policy (http://www.calstatela.edu/academic/senate/handbook/ch5a.htm). **Cheating** (deceit, trickery, artifice) and **plagiarism** (steal and pass off the ideals or words of another as one's own)

are in violation of the honor code and the spirit of learning at the University, and will be subject to disciplinary action and may receive a failing grade or University dismissal.

MICR 302 **LABORATORY SCHEDULE** **WINTER 2010**

DATE	ACTIVITY	LAB WORKBOOK
Jan. 5 -	Check-In Staining: Gram, Acid-fast Maintain Stock cultures on Agar Slant	Chp 1,2,12
7 -	*Staphylococcus* species *Micrococcus*	Chp 4
12 -	*Streptococcus* species	Chp 4
14 -	***Staph/Micrococcus* Group Unknown Report due: Flow Chart of test results – Gram stain, biochemical tests (10 points)** *Neisseria* species	Chp 5
19 -	***Streptococcus* Group Unknown Report due (10 points)** Enterobacteriaceae I;	Chp 7
21 -	***Neisseria* Group Unknown Report due (10 points)** Enterobacteriaceae II **Quiz 1 (20 points)**	Chp 7
26 -	**Enterobacteriaceae I Group Unknown Report due (10 points)** *Vibrio, Aeromonas, Pasturella* Group	Chp 7,8,10
28 -	**Enterobacteriaceae II Group Unknown Report due (10 points)** Non-fermenters	Chp 9
Feb. 2 –	***Vibrio* et al. Group Unknown Report due (10 points)** *Haemophilus* et al.	Chp 6,10
4 -	**MIDTERM EXAM (100 points)** **Nonfermenter Group Unknown Report due (10 points)** Fecal Unknown: primary isolation media provided	
9 -	***Haemophilus* et al. Group Unknown Report due (10 points)** Work on Fecal Unknown: biochemical media upon request Blood Unknown: primary isolation media provided	
11 -	Work on Unknown: biochemical media upon request	
16 -	Practice with micropipetors Anaerobe Educator	Chp 11
18 -	**Fecal Unknown Report due (20 points)** Isolate DNA from Molecular Unknown	

DATE	ACTIVITY	LAB WOOKBOOK
	Anaerobe educator	Chp 11
Feb. 23 -	**Blood Unknown Report due (20 points)**	
	Set up PCR for DNA of Molecular Unknown	
	Anaerobe educator	Chp 11
25 -	Run Agarose Gel of Unknown PCR product and cut DNA band from Gel	
	Anaerobe educator	Chp 11
Mar. 2 -	**Quiz 2 (20 points)**	
	Elute Molecular Unknown DNA from Agarose Gel band	
	Run Sequencing Reactions for Molecular Unknown DNA	
4 -	Clean up Molecular Unknown DNA in preparation for Sequencing Gel	
	Set up PCR reaction to identify *E. coli* strains carrying a Shiga-like toxin	
9 -	Agarose Gel of *E. coli* PCR products	
	Analysis of Agarose Gel results to identify pathogenic *E. coli* strains	
	Molecular Unknown Sequencing Gel results and analysis (use BLAST databank)	
11 -	**Laboratory Final Exam (100 points)**	
	Molecular Unknown Report due (40 points)	

Reading assignments are from *Laboratory Workbook in Diagnostic Microbiology* by Connie R. Mahon and George Manuselis, Jr. (Out of print but available on class website).

Also additional reading from *A Photographic Atlas for the Microbiology Laboratory* by Michael J. Leboffe and Burton E. Pierce.

All laboratory quizzes will be given at the beginning of class, (9:50). Make-ups will **not** be given.

In order to promote good experimental laboratory procedure, each student will maintain a MICR 302 Laboratory Notebook, which will be a 3-ring binder with the M&M Lab Chapters (from class website), Molecular Microbiology Procedure handout, collected lab data and test results. The Lab Notebook will be turned in for evaluation to the instructor at end of quarter.

NOTE: FOR BIOHAZHARD SAFETY STUDENTS ARE TO WEAR LABORATORY COATS AND NO EATING OR DRINKING AT ALL TIMES IN THE LABORATORY!

Due to the nature of performing efficient biochemical analyses on clinically-significant bacterial isolates, **students must be advised that extra laboratory work will be necessary**, especially during the last half of the quarter. Persons who cannot schedule extra time for laboratory work should plan to enroll in this course at another time. All unknowns will be identified to *Genus-species*, and to serotype when necessary.