

MBIO 3032 Bacteriology Laboratory
TR 9:00 a.m. – 11:50 a.m., N331 Spring 2012

Instructor RRichard Anderson, Ph.D.
Office/Telephone **Office hours** TuTh 8:10 – 8:50 a.m. or by appointment
E-mail RAnderson12@CSUStan.edu **Webpage** <http://virtual.yosemite.cc.ca.us/randerson/index.html>

Course description: An introduction to the principles and basic laboratory methods employed in working with bacteria.

Course objectives:

- 1) Gain hands-on experience with basic methods of culturing, identifying, and handling bacteria (aseptic techniques, streak plating, staining methods, microscopy, etc.)
- 2) Apply laboratory skills acquired to isolate, culture and identify an unknown mixture of bacteria.
- 3) Gain skills in working with others as a team

Course Prerequisite: MBIO 3010, or concurrent enrollment.

Required Text: Laboratory Experiments in Microbiology, by Johnson and Case, 9th Edition. You **must** purchase the lab manual and always bring it to lab. Any student who does not have the lab manual at the beginning of the second lab period will be dropped from the course.

*Do NOT use any lab notebook that has already been written in!

ADD/DROP Policy: The add/drop policy for this course is the same as the university add/drop policies.

Grading policies:

1. **Academic Dishonesty and Misconduct:** Exams and reports are indicators of individual performance. Discussion of lab results with lab partners is encouraged but lab reports must be in your own words. Copying another student's exam or lab report (even if you are members of the same lab group), using a notebook that is written in or handing in lab reports for lab exercises you missed all constitute cheating. There is zero tolerance for cheating. Cheating in any capacity in this class will result in penalties ranging from a minimum of a zero on the assignment or exam to a maximum of expulsion from California State University, Stanislaus as indicated by the official University Policy regarding dishonesty and misconduct. Taking out a cell phone during a quiz/exam is considered cheating, your quiz/exam will be confiscated, and you will receive a grade of F on the quiz/exam.
2. **Lab attendance is mandatory.** Please read all lab exercises before lab time and arrive on time for all labs. Role will be taken during each lab period. If you missed a lab, you are still responsible for the information, but you may not submit a lab report for that lab experiment (handing in a lab report for exercises you missed constitutes cheating because you copied the information from someone else's report). By enrolling in this class, you are committing to being in the class during the hours when it is in session so do not make appointments during class time. There will be no make-up labs! Excessive tardiness or leaving early will be marked as absences. Missing more than 2 lab periods will result in an F for the course.

NOTE: If you are immunocompromised for any reason or are pregnant, you need to check with your physician before continuing in the class. If either of these cases applies to you, you need to

provide a note from your doctor stating that it is ok for you to participate/be in a microbiology lab. I will be glad to provide a list of organisms and reagents used if you would like one.

3. **There will be no make-up exams.** Failure to appear at exam time will result in zero points for that exam.
4. **Total possible points for course = 400.**
 - a. Two Exams (each worth 100 pts) = 200 points total
 - b. Five quizzes (50 pts)
 - Will be given throughout the semester (dates may change from schedule below)
 - No make-up for quizzes you missed during your excused/unexcused absence
 - c. Ten Lab reports (50 pts) - Grading Deductions:
 - i. Pages are not stapled together.
 - ii. Incomplete, i.e. does not include all data, relevant information, etc.
 - iii. Excessive incorrect/incomplete answers indicating lack of thought and effort.
 - iv. Lack of detail in drawings.
 - v. Failure to follow guidelines and instructions.
 - vi. Sloppy.
 - vii. The ten lab reports will be turned in as soon as the labs are completed, according to the schedule. They are 5 points each, and I expect the average student to get 5 points on each lab report. Usually, results from a lab must be read on the second period, the report is completed that same period in class, and then turned in that second period. Keeping up this pace will keep you current; you focus intently on a lab, master it, then move on.
 - d. Unknowns report (100 pts).

***Absolutely no late assignments will be accepted.**

5. **Grading** will be based on a percent scale:
93-100 = A, 90-92 = A-, 87-89 = B+, 83-86 = B, 80-82 = B-, 77-79 = C+, 73-76 = C, 70-72 = C-, 67-69 = D+, 60-66 = D, < 60 = F

Note: The instructor reserves the right to reduce your grade due to excessive absences and/or tardiness.

Tentative schedule (The dates below reflect the day you begin an experiment)

Turn in lab reports as they are completed, as indicated ("T.i." means "turn in")

Date		Subject	Lab exercise(s)
Jan.	26	Introduction; Supply drawer check in General Lab rules and Safety Microscope assignment and review (Neil)	1
Jan.	31	Microscope use: Wet mount, Brownian Movement vs. Motility	1, 2
Feb.	2	Microbes in the environment	3 (Turn in 1, 2)
	7	Transfer of bacteria	4 (T.i. 3)
	9	Staining Methods: simple, negative and Gram stain	5, 6, 7 (T.i. 4)
	14	Staining Methods: Special stains	8, 9 (T.i. 5,6,7)
	16	Quiz #1 (On intro-Lab ex. 4) Isolation of Bacteria Special Media for Isolation	11 (T.i. 8, 9) 12
	21	Microbial Metabolism	13, 14 (T.i. 12)
	23	Quiz #2 (On lab ex. 5-12) Microbial metabolism (cont'd)	15, 16, 17 (T.i. 13, 14, 11)
	Feb.	28	Microbial Metabolism (cont'd)
Mar.	1	Quiz #3 (On lab ex. 13-17) Microbial Growth	19, 20 with changes
	6	Control of Microbial Growth	22, 23 (T.i. 19, 20)
	8	Control of Microbial Growth	24, 25, 26 (T.i. 22, 23)
	13	Control of Microbial Growth (Cont'd) Review for exam	
	15	Laboratory Exam (100 points) – up through microbial growth	
	20	Quiz #4 (Lab ex. 22-26) Microbiology of Water	52, 53
	22	Microbiology of Soil	56, 57
	27	Medical Microbiology Demonstration	
	29	Quiz #5 (Lab ex. 52-53, 56-57, medical demo) Begin Unknowns project	
Apr.	3	Unknowns	
	5	Unknowns	
	10	Spring break!	
	12	Spring break!	
	17	Unknowns	
	19	Unknowns	
	24	Unknowns	
	26	Unknowns	
May	1	Unknowns	
	3	Unknowns	
	8	Unknowns	
	10	Unknowns	
	15	Unknowns report due (100 points) Final Laboratory Exam (100 points)	

Note: The schedule and procedures in this course are tentative and subject to change in the event of extenuating circumstances. (30 sessions plus Easter; no Cesar Chavez; 10 sessions for Unknowns)

Expectations of students for MBIO 3032 Bacteriology Laboratory:

1. **Come to lab prepared:** We do a lot of different stuff in these labs and sometimes you will have many experiments going on at the same time but the lab experiments can be finished in the allotted time if you read the laboratory exercises and have a reasonably good idea of the game plan for a particular lab before coming to class.
2. **You are responsible for all lab reports for the experiments unless otherwise notified.** On the occasion that the entire experiment is not performed, or changes have been made in the technique or organisms used from those listed in your lab manual, you are responsible for the part that is performed and noting the changes in your lab manual.
3. **Copy the board or overheads.** This is a synopsis of what's going on in lab including changes that were made to lab protocols. The lab exercises may seem self-explanatory while you're in lab but when you're at home trying to work on your lab notebook you may find it useful to have all the material in your lab book. Also some experiments take several days to complete, so you need to keep organized, accurate notes of what you have done.
4. **Stay on top of the assignments** – organizing and completing you lab notebooks as you go. If you wait too long you may forget what you did or what the results were.
5. **Work with and communicate with me** – do not hesitate to ask any question. If you are unsure about something, ask before you act.
6. **Work with and communicate with your lab partners** – when working as a group, it's easy to fall into the "I thought you were doing that" syndrome, so be clear about who is doing what. Furthermore, even when you are working with others on an experiment you must also be familiar with all parts of the exercises.
7. **Arrive on time** – You may miss quizzes and/or important instructions for the lab exercises, and it is also disruptive to the class. Partners will arrive together and leave together, especially important for the exercises for which you will be working in groups.
8. **No use of cell phones, computers, cameras, Ipods, or MP3 players during lab** – All should be put away in backpack; turn all cell phones and pagers off before coming to lab. If you have an emergency situation and are waiting for a call, please let me know at the beginning of lab. If you need a calculator, bring one. You will not be allowed to use your phone as a calculator or for taking photos. Carefully observing, then drawing the results with colored pencils, is better than photographing the many biochemical tests we use in class.
9. **Obey all laboratory safety rules!**
 - a. **No food or drink in lab.** Water bottles are to be inside of backpacks only.
 - b. **Closed toed shoes** must be worn in the lab, students without closed toe shoes will be asked to leave and this will constitute an absence.
10. **Have fun, have a good attitude and put in your best effort!**

"Freedom and happiness come from willing compliance with necessary rules" - Anonymous