

**MBIO 3032-001 Bacteriology Laboratory (2 units)**  
**Spring 2020 TR 9:00A – 11:50A N331**

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<b>Instructor</b>	My Lo Thao, Ph.D.
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<b>Office hours</b>	M 10:00A-11:00A, R 12:00P-1:00P or by appointment
<b>E-mail</b>	<a href="mailto:mthao@csustan.edu">mthao@csustan.edu</a> <ul style="list-style-type: none"><li>• best method of contacting instructor</li><li>• please include your name and the course number in the subject line</li></ul>
<b>Webpage</b>	<a href="http://moodle.csustan.edu">http://moodle.csustan.edu</a>

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**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 of 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 Requirement**

**Prerequisite:** Successful completion of MBIO 3010, or concurrent enrollment.

**Required Text:** Laboratory Experiments in Microbiology, by Johnson and Case, CSU Stanislaus custom edition. You **must** purchase the lab manual and always bring it to lab. No photocopies will be accepted. Any student who does not have the lab manual on the second lab period will be dropped from the course.

\*Do **NOT** use any lab notebook that has already been written in! Doing so constitutes cheating and you will be dismissed from the class with an F.

**ADD/DROP Policy:** Last day to add is February 10<sup>th</sup>; last day to drop is February 21<sup>st</sup> (census date). The add/drop policy for this course is the same as the university add/drop policies.

**Grading policies:**

1. **Academic Dishonesty and Misconduct:** Exams, quizzes 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 off of another student's exam, quiz 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, or an F in the course 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.
2. **Lab attendance and participation is mandatory.** Please read all lab exercises before lab time and arrive on time for all labs. Laboratory consists of hands-on activities and therefore requires your presence and active participation in all lab activities. 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 class during the hours when it is in session so do not make appointments during class time. There are no

make-up labs! Excessive tardiness or leaving early will be marked as absences. Missing more than 2 lab periods may 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. **Make-up exams given only under extenuating circumstances and with proper documentation:**  
Make-up exams may be different than exam given to the rest of the class. Exams must be made up within one week of the missed exam. It is the responsibility of the student to make the necessary arrangements with the instructor.
4. **Total possible points for course = 400.**
  - a. Two Exams (each worth 100 pts) = 200 points total
  - b. Five quizzes (50 pts)
    - Given throughout the semester (dates may change from schedule below as necessary)
    - No make-up quiz when you are tardy for class. Make up for quizzes may be given for documented absences only and may be different than that given in class.
  - c. Lab book (50 pts) - Grading deductions:
    - i. Incomplete, i.e. does not include all materials (data, calculations, observations, etc.).
    - ii. Excessive incorrect/incomplete answers indicating lack of thought and effort.
    - iii. Lack of detail in drawings.
    - iv. Failure to follow guidelines and instructions
    - v. Sloppiness.
  - d. Bean Beetle Microbiome project (100 points)
    - i. Preliminary reports (60 pts)
      - Background and hypothesis (20 pts)
      - Experimental design (20 pts)
      - Data analysis and new questions (20 pts)
    - ii. Final report (40 pts)

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

5. **Grading** will be based on a percent scale as follows:  
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.**

## 6. Course Page

Information for the course (**learning** objectives, exam scores, syllabus, related materials, etc.) can be found on the course's Moodle page ([moodle.csustan.edu](http://moodle.csustan.edu)). Materials **are copyrighted** and are only for the personal use of students enrolled in the course. **Do not** give your username/password to anyone else. If you do so **no more** material will be provided.

How to enroll yourself in our Moodle site:

1. Go to the Moodle site at <http://moodle.csustan.edu>.
2. Under Course Categories, locate and click on the course you need to enroll in - MBIO 3032: Bacteriology Lab.
3. At the login screen, enter your **Warrior ID and Password** to log in.

4. Next, in the box labelled “Self-enrollment (Student)” use the following key: **mbio3032sp20** and you will be able to access the class site.

If you have any problems logging in or enrolling, please email Glenn Pillsbury ([moodleadmin@csustan.edu](mailto:moodleadmin@csustan.edu)), our Moodle administrator.”

### **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. **Take notes during introduction by instructor.** 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 may take several days to complete, so you need to keep organized, accurate notes of what you have done.
4. **Stay on top of completing you lab notebooks.** 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 do for your own safety and the safety of others.
6. **Work with and communicate with your lab partner** – 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, Ipods, MP3 players or other electronic gadgets 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 are not allowed to use your phone to take pictures or as a calculator or timers, or any other reason at any time. If cell phones taken out, they will be confiscated and/or you will be asked to leave lab.
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!**

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

Date		Subject	Chapter(s)
Jan	28	Introduction, Supply drawer check in General Lab rules and instructions Microscope assignment and review (Carrie)	
	30	Use and care of the microscope Examination of living organisms	2 3
Feb	4	Microbes in the environment Transfer of bacteria	4 5
	6	Microbes in the environment (Cont'd) Transfer of bacteria (Cont'd)	
	11	Quiz #1 (intro-ex. 5); Staining Methods: simple and negative stain	6, 7
	13	Staining Methods: Gram and acid-fast stain	8
	18	Staining Methods: Special stains	9
	20	Isolation of Bacteria Special Media for Isolation	10 11
	25	Microbial Metabolism	12, 13, 14, 15, 16
	27	Quiz #2 (ex. 6-11); Microbial metabolism (cont'd)	
Mar	3	Microbial Growth	17 + supplement
	5	Quiz #3 (ex. 12-16); Microbial Growth (cont'd), review for exam	
	10	<b>Lab Exam (100 points) – up through microbial growth (Ex. 2-18)</b>	
	12	Control of Microbial Growth I	18, 19
	17	Control of Microbial Growth I (cont'd); Control of Microbial Growth II	20, 21, 22
	19	Microbiology of Water	23, 24
	24	Spring break, no class.	
	26	Spring break, no class.	
	31	Cesar Chavez Day, no class!	
Apr	2	Quiz #4 (Ex. 18-22) Start <b>Microbiome of Bean Beetle Project</b> <ul style="list-style-type: none"> <li>Introduction to insect microbiomes, bean beetles, experimental design, &amp; culturing microbes</li> </ul>	
	7	DNA extraction, phenotypic assessment of microbes, & culture-based PCR of selected colonies	
	9	Quiz #5 (ex. 23-24); DNA extraction, phenotypic assessment of microbes, & culture-based PCR of selected colonies	
	14	Electrophoresis and Iteration Day for failed culture-based PCR	
	16		
	21	Introduction to bioinformatics & analysis of colony sequencing data	
	23		
	28	Introduction to community analysis, phenotype and colony sequence analysis	
	30		
May	5	Community analysis of sequencing data	
	7		
	12	Catch up day	
	14	<b>Final Lab Exam (100 pts; Beetle project final report due (40 pts)</b>	

**Note:** The schedule and procedures in this course are tentative and subject to change in the event of extenuating circumstances.