

Biology 31 (Biol 31) Microbiology

Semester: Spring 2024 Reedley Community College	
Lab Instructor: Paria Azami	Email address: pa015@reedleycollege.edu Or directly through Canvas
Office Hours: TTH: 12:00-1:40 pm in-person Fri: 11:00-11:50 am through Zoom	Location for in-person OH: LFS 13 Zoom link for virtual OH: https://ucr.zoom.us/j/4865266961 (You can email me to schedule a meeting outside of the listed days/times if none of these work for you).
Labs Days/Location: TTH at LFS 6	Lab Times: Section 50025: 2:00-4:50 pm Section 50026: 5:30-8:20 pm

Welcome Letter:

Dear students, welcome to Bio 31 Laboratory! My name is Paria Azami, and I will be your lab instructor this semester. Having been in academia for a very long time myself, I know what it is like to be a student. Please know that your success is my number one priority, and I will do whatever I can to make this class a fun, memorable, and valuable experience for you all. Please know that you can always reach out to me if you have any questions, need more clarification on a subject, or need any type of accommodation. I will do my best to create a classroom environment that is welcoming and inclusive; one that fosters a culture of sharing, understanding, respect, and collaboration among students. I expect you all to participate in creating such an environment in order to cultivate a positive and enriching learning experience for everyone. I am not just your microbiology laboratory instructor, but also a useful academic resource that can help guide you in your academic journeys. I hope that together we can have a very fulfilling semester and learn exciting things about the microbial world!

Please Note: The instructor reserves the right to change the reading structure and topic schedule. This syllabus and the schedules within are subject to change in the event of extenuating circumstances. If you are absent from class, it is your responsibility to check for any missed assignments or homework. It is recommended that you obtain at least one of your classmate's contact information to reach out in the event that you miss a class.

Catalog Description: Microbiology, 5 units, 3 hours lecture, 6 hours lab, including classification, morphology, identification, and physiology of microorganisms. May include a field trip.

This course provides an introduction to the structure, metabolism and ecology of microorganisms with special emphasis on microbe-related human diseases. This course is designed to introduce the student to a variety of topics in the area of microbiology. The text, lab manuals, and lectures are geared to students in biological, medical, physical education and health-oriented programs. **PREREQUISITES:** Biology 1 or 5 or 11A and Chemistry 3A or 1A. **ADVISORIES:** English 1A Math 201. (A, CSU-GE, UC, I)

Prerequisites: Successful completion of Biology 1 or Biology 5 or Biology 11A and Chemistry 1A or 3A. Recommended: Successful completion of Biology 20 and Biology 22.

Learning Outcomes:

- Develop important critical thinking skills as they evaluate the results of laboratory experiments and demonstrations.
- Develop important manual dexterity skills associated with operation of technical laboratory equipment (microscope, autoclave, agar plates, sterile technique apparatus, Enterotubes).
- Identify the basic structure, metabolism and ecology of a variety of microorganisms (viruses; bacteria; fungal, protozoan, and helminth parasites) which in turn, will allow them to better understand how these microbes function in their specific environments
- Learn how some microorganisms are beneficial to mankind while others cause a variety of human diseases.
- Learn to use the scientific method and be able to evaluate a variety of laboratory experiments (such as Identification of Unknowns, Biochemical Tests, Temperature Effects on Growth, Antibiotic Sensitivity).

Required Materials:

- Openstax Microbiology available free at <https://openstax.org/details/books/microbiology> (or as a print copy if you want to buy one) OR Tortora, Gerard J. et al., Microbiology, 13th Edition, 2018. Benjamin Cummings Publishing Company with NO ACCESS CODES, etc.
- Lab manual – provided free as handouts on canvas
- White Laboratory Coat
- Microscope slides (you can share a box/pair)
- Scantrons: 5x 882E

Technology Requirements:

- Computer/Tablet/Smartphone - Many files and materials will be available through the learning management system Canvas. All students must have access to a device with internet access to that allows students to retrieve and complete assignments through Canvas.
- Internet access, campus email - Check Canvas and your Reedley College email accounts regularly (multiple times per week) for announcements.

Attendance and Drop/Add Policy:

I will take attendance in the beginning of every class! You are expected to attend the lab at its scheduled meeting days and times unless circumstances prevent this, in which case, you must discuss and make arrangements with me individually beforehand. Failure to attend the labs will result in reduction in course grade.

During the first two weeks of the course, students may be dropped for inactivity and absence in the course. To avoid being dropped from this class, you must attend all the scheduled lectures and labs, login to Canvas and stay up to date with any posted announcements and complete any published online tasks.

Expectations and Policies:

- Be professional, respectful, kind, and understanding towards your classmates and instructors. Inappropriate behavior towards your classmates or instructors will not be tolerated and will result in removal from the course.
- Make up labs for absences are not possible
- Cheating, suspected cheating, plagiarism, and use or suspected use of AI (e.g. ChatGPT) for any assignment or exam will result in a zero on that assignment, any repeat offense will result in an F in the course.
- During class, please keep electronic devices on silent and away. They should not be out on the counter in the microbiology lab.
- No electronics may be used during exams. Phones and smart watches must be in silent mode and put away during exams.
- No food or drink may be consumed during the lab. No food or drink waste should be discarded in the trash cans in the lab. If you need to eat or drink, wash your hands, leave the lab, and then come back inside.

Public Health Related Safety Clauses and Information:

As of the writing of this syllabus (08/03/23), this course is scheduled to meet in person for labs only. However, I reserve the right to modify this course meeting and/or modality including the ability to move this course back to fully online if deemed necessary following increases in

prevalence of infectious disease cases, and/or changes to local, state and/or federal public health policies, or declaration of a global pandemic. Or reduce classroom capacity. As such I would emphasize Syllabus schedule is subject to change.

Sick?

PLEASE DO NOT COME TO CLASS! Please send me an email explaining your situation and we can discuss and arrange solutions as needed. The microbiology lab is filled with bacteria...coming to lab when already ill is not a good idea!

Late Assignments and Makeups:

No late assignments will be accepted. No EXCEPTIONS. Late/Makeup exams will only be given except in the most extreme of situations and only with explicit approval from the instructor (me). If an extenuating circumstance arises that is beyond the realm of your control, let me know and we can discuss. However, you MUST alert me of any situation at least one day before the exam date/time.

Tests and Evaluations:

2 laboratory exams 150 pts each
1 unknown laboratory assignment 30 pts
Lab reports as assigned 10-20 pts each
Miscellaneous assignments 5-20 pts each

Course Grading Scale

Percent Range	Grade
90-100	A
80-89.9	B
70-79.9	C
60-69.9	D
Less than 60	F

Laboratory Conduct:

- Students are to always maintain clean work areas. Keep unnecessary books, papers, electronics, purses, etc., off the laboratory tables.

- Disinfectant laboratory tables at the beginning and at the end of every lab period.
- Aseptic techniques are to be followed at all times.
- Lab coats are to be always worn correctly in the lab (fully buttoned). Students with long hair must keep it contained with pins, clips, headbands, or rubber bands, etc. so that it will not sweep across desks, Bunsen burners, and/or microscopes. Legs are to be covered at all times. Close toed-shoes and socks are to be worn at all times.(Please wear pants/shoes without holes in them... holes don't protect from spills)
- 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. They are available in the classroom.
- Any spills of living organisms must be reported to your instructor immediately! Should a spill occur and not be reported immediately, these are grounds for removal from the class.
- If you spill on anything, bags, jackets, shoes, accessories, it WILL go into the autoclave for sterilization (and could be destroyed).
- Food and drinks are NOT allowed in the laboratory! NEVER eat or drink in the laboratory and avoid putting any objects in your mouth. Some organisms used in class are potentially pathogenic or are pathogenic.
- Wash your hands thoroughly and dry them before you leave the laboratory.
- Adhere to the Reedley Community College rules of student dress and conduct.
- Masks must be worn when working with any potential pathogenic organism.

IF YOU ARE UNDER THE AGE OF 18, YOU MUST HAVE A PARENT/GUARDIAN SIGNED CONSENT FORM TO WORK IN THE MICROBIOLOGY COURSE. YOU WILL NOT BE ALLOWED AROUND ANY MICROORGANISMS AND WILL BE DROPPED FROM THE COURSE IF THIS IS NOT COMPLETED.

Communication Policy:

- The best way to get ahold of me is by emailing me at pa015@reedleycollege.edu or by sending me a direct message through Canvas. I check my emails regularly and will generally respond in less than 24 hours, except on the weekends and after 9pm on weekdays.
- You are also encouraged to meet me during my indicated office hours to discuss any questions or concerns you may have. If the listed days/times do not work for you, you are welcome to send me an email to schedule a different time for us to meet over Zoom. The Zoom link is also provided in this syllabus.

Canvas and School Email:

Please make sure to check Canvas and your school email regularly as I will be posting our course content and important announcements throughout the semester. It is your responsibility to stay up to date with the posted material and upcoming assignments.

Drops:

If you elect to drop the class, please do it yourself. The instructor may or may not drop you from class due to prolonged inactivity and absence. So, if you decide to discontinue the class, it is your responsibility to drop in order to avoid receiving an F for the course.

Here are some important drop dates/deadlines:

January 19: Last day to drop a Spring 24 full-term class for full refund

January 26: Last day to drop a Spring 24 full-term class to avoid receiving a W in person

January 28: Last day to drop a Spring 24 full-term class to avoid receiving a W on Self-Service

Tutoring Services:

Tutors are available in the tutorial center. If you have not had a biology class since high school, working with a tutor will get you up to speed. The tutors are former students who know how to study for the class. “With this statement on my course syllabus, I am referring each of my enrolled students in need of academic support to tutorial services. Referral reason: Mastering the content, study skills, and basic skills of this course is aided by the use of trained peer tutors.” The Learning Center (Tutorial) has tutors for many courses, some meet in-person in the Learning Center and some meet over Zoom. There are two links that allow you to search for tutors by subject and availability. If you cannot find a tutor that fits your needs, contact the Learning Center Coordinator, Jim Mulligan at jim.mulligan@reedleycollege.edu or call (559)- 494-3000 ext. 3430.

Tutoring services website: <https://www.reedleycollege.edu/academics/tutoring-services/index.html>

College Policies:

The university has several policies that you will be expected to adhere to in my course. The Policy on Students with Disabilities, the University Honor Code, the Policy on Cheating and Plagiarism, a statement on copyright, and the university computer requirement, portions of which are below, can all be found in the University Catalog (Policies and Regulations) and Class Schedule.

“Students at the Reedley College are entitled to the best education that the college can make available to them, and they, their instructors, and their fellow students share responsibility for seeing that their education is honestly attained. Because cheating, plagiarism, and collusion in dishonest activities erode the integrity of the college, each student is expected to exert an entirely honest effort in all academic endeavors. Academic dishonesty in any form is a very serious offense and will incur serious

consequences.” Reedley College Catalog pg. 45 o Please see Disciplinary Procedures in the Student Conduct Standards and Grievance Procedures Handbook available in the Vice-President of Student Services office, or at the link listed below. For a comprehensive list of Student Conduct Standards, see: <http://reedleycollege.edu/index.aspx?page=233>

If you have a verified need for an academic accommodation or materials in alternate media (e.g. Braille, large print, electronic text, etc.) per the Americans with Disabilities Act (ADA) or Section 504 of the Rehabilitation Act, please contact the instructor as soon as possible.

Accommodation:

Students diagnosed with disabilities should contact the Disabled Students Programs and Services (DSP&S). Please give me a copy of the letter you receive from DSP&S detailing the class accommodations you may need (e.g. longer exam times, etc.). If you require accommodation for a test, please make sure I have the letter no less than three days before the exam day. If you have a need for an academic accommodation or materials in alternate media (i.e. Braille, large print, electronic text, etc.) per the Americans with Disabilities Act (ADA) or Section 504 of the Rehabilitation Act, please contact me as soon as possible.

If you require testing outside of the classroom, we may need to discuss logistics for laboratory assessments as these often must be set up in the lab.

For more information, please visit: <https://www.reedleycollege.edu/student-services/disabled-student-programs-and-services/index.html>

Location: DSP&S Building, Reedley College 995 N. Reed Ave, Reedley, CA 93654

Phone: (559) 494-3032

Every syllabus represents the intended roadmap and structure of the course, but due to unforeseen events and/or feedback during the semester, adjustments may be necessary. This is a reminder that some details described in the syllabus are potentially subject to change at the discretion of the instructor, but I will inform you as promptly and clearly as possible as to the reasoning for any changes.

Diversity Statement:

As a biology instructor at Reedley College, I am committed to fostering an inclusive and diverse learning environment for my students. I recognize the importance of embracing and celebrating the unique perspectives, backgrounds, and experiences of my students. By valuing diversity, I aim to create a safe space where all individuals can thrive academically and personally. I am dedicated to promoting equity, fairness, and respect for everyone, regardless of their race, ethnicity, gender, sexual orientation, ability, or socioeconomic status. Together, we can embrace our differences, learn from one another, and build a strong and inclusive community. If you

believe that my course and/or my instructional techniques are in any way invalidating your group identity or are in some way hampering your ability to succeed, please let me know so that I can address any concerns you have.

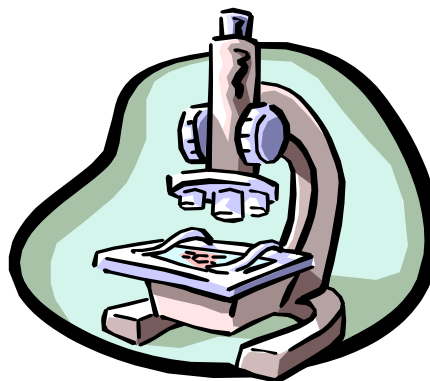
Tentative Laboratory Schedule-Spring 2024

Week	Date	Laboratory Experiment
1	01/08-01/11	Lab 1: Orientation, Introduction to Microscopy, Safety, and Culturing
2	01/15*-01/18 Monday holiday might affect Tuesday's class	Lab 2: Simple Staining
3	01/22-01/26	Lab 3: Differential Staining
4	01/29-02/02	Lab 4: Morphologic Unknown and Media Making
5	02/05-02/09	Lab 5: Bacterial Growth, Culturing, and Ubiquity of Life
6	02/12-02/16	Lab 6: Isolating and Differentiating Medically Relevant Microbes Part 1-Macromolecule Tests and Biochems
7	02/19*-02/23 Monday holiday might affect Tuesday's class	Lab 7: Isolating and Differentiating Medically Relevant Microbes Part 2-Macromolecule Tests and Biochems
8	02/26-03/01	Tuesday: Lab Exam 1 Lab 8: Determining Bacterial Concentration and Microbiota, Serial Dilution, Dilution Problems
9	03/4-03/08	Lab 9: Respiration and Fermentation-Carbohydrates
10	03/11-03/15	Lab 10: Exoenzymes
11	03/18-03/22	Lab 11: Environmental Growth Effects
12	03/25-03/29**	Spring Break, Campus Closed
13	04/01-04/5	Lab 12: Chemical Control of Microbes
14	04/08-04/12	Lab 13: Eukaryotic Microbes

15	04/15-04/19	Lab 14: Microbiota and Bioinformatics
16	04/22-04/26	Tuesday: Lab Exam 2 Lab 15: Unknown Microbe Determination 1
17	04/29-05/03	Lab 15: Unknown Microbe Determination 2
18	05/06-05/10	Lab 15: Unknown Microbe Determination 3

MICROSCOPE STORAGE CHECKLIST

1. Shut off the illuminator (light) and turn off the power before unplugging the microscope.
2. Remove any slide from the stage and return all slides to their appropriate storage site.
3. Clean all lenses with lens paper. This means oculars, objectives, and condensers. Make sure to clean from the cleanest lens to the dirtiest lens. (Oculars first, 4x, 10x, 40x and last 100x)
4. Clean any traces of immersion oil, stain, water, or other foreign substances from the stage or any other part of the microscope. If you are unsure how to clean these areas, ask your instructor or the technician.
5. Rotate the scanning objective (4x) lens into position.
6. Lower the stage all the way down, creating a greater working distance between the objective lenses and the stage.
7. Coil the power cord neatly around the hooks provided on the back of the scope
8. Cover the microscope with its protective dust cover.
9. Handle the microscope carefully. Keep a firm grasp on the arm and a protective hand under the base when transporting it from the desk to the cabinet.



10. Make sure when you are placing the microscope back into the cabinet you do not hit the oculars against the back of the cabinet, this damages the plastic ring inside the oculars.
11. Make sure that the microscope is returned to its matching numbered cabinet.
12. Place the microscope in the cabinet with the arm facing out.
13. When you take your microscope out for use, check its condition. If the microscope was put away improperly, please fill out a "Microscope Misuse Report". The student who was sloppy will get a warning; then, if repeat violations occur, the student will incur penalties. Only the technician and instructor see these slips, so please fill one out if there is something wrong with the microscope.
14. If your microscope appears to be malfunctioning in any way, report the problem to your instructor or the technician.
15. Make sure not to store anything in the microscope cabinet other than the microscope. If you notice anything in there when you start lab notify your instructor or the technician.