

BIOL 2042 MICROBIOLOGY LABORATORIES- SYLLABUS Spring 2026

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Course Description, Structure, and Objectives:

Laboratory techniques in general microbiology. Survey of microorganisms including bacteria, fungi, protozoa, and algae. Culture, staining and identification of bacteria. Perform a project to identify antibiotic-producing bacteria from soil.

Prerequisite(s): CHEM 1420 (may be taken concurrently). Co-requisite(s): BIOL 2041

Required/Recommended Materials:

- Hughes & Hughes, Microorganisms, A Laboratory Manual. 3rd edition, Kendall Hunt Publishing company, ISBN: 979-8-3851-6615-2
 - Bring your lab manual to each laboratory session. Filling out lab results and answering questions for each lab are part of your grade
- Tiny Earth Project-A Research Guide to Student sourcing Antibiotic Discovery to be used during the second half of the semester, Kendall Hunt Publishing company ISBN: 9781711470726
- PowerPoints and supplementary readings will be posted in Canvas

How to Succeed in this Course:

It is students' responsibility (not instructors' responsibility) to check Canvas for class materials and reviews and emails for the announcements every day, Attendance is mandatory. Each student is responsible for reading the lab manual before each lab and perform experiments in class. There will be assessments in the form of practical exams, quizzes, lab reports, assignments. Students are expected to meet instructors outside the lab during office hours to ask for clarification or find support with understanding class material. Your success is our goal.

ADA accommodation (UNT Policy: 16.001)

The University of North Texas makes reasonable academic accommodation for students with disabilities. Students seeking reasonable accommodation must first register with the Office of Disability Access (ODA) to verify their eligibility. If a disability is verified, the ODA will provide you with a reasonable accommodation letter to be delivered to faculty to begin a private discussion regarding your specific needs in a course. You may request reasonable accommodation at any time; however, ODA notices of reasonable accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of reasonable accommodation for every semester and must meet with each faculty member prior to implementation in each class. Students are strongly encouraged to deliver letters of reasonable accommodation during faculty office hours or by appointment. Faculty members have the authority to ask students to discuss such letters during their designated office hours to protect the privacy of the student. For additional information, refer to the Office of Disability Access website (<http://www.unt.edu/oda>). You may also contact ODA by phone at (940) 565-4323.

Supporting Your Success and Creating an Inclusive Learning Environment:

I value the many perspectives students bring to our campus. Please work with supervisor or your instructor to create a classroom culture of open communication, mutual respect, and inclusion. All discussions should be respectful and civil. Although disagreements and debates are encouraged, personal attacks are unacceptable. Together, we can ensure a safe and welcoming classroom for all. If you ever feel like this is not the case, please stop by my office and let supervisor know. We are all learning together.

Always be respectful of your laboratory instructor and your lab mates. Do not distract or obstruct lab mates when they are carrying out experiments, this can compromise their safety and integrity of their experiments. Disruptive/bad behavior compromises safety of lab participants and will not be tolerated. If such behavior is incurred, points will be deducted from your participation grade, and it will be reported to the UNT Dean of Students Office. If the student doesn't agree with the instructor, the student should wait till the class is over and talk to the instructor alone and if needed talk to supervisor.

Assessing Your Work:

Grade Distribution: **A>= 360**

B= 320-359

C= 280-319

D= 240-279

F<= 239

Composition of lab grade

| | |
|---------------------------------|-------------------|
| Online Prelab Quizzes (10) | 60 points |
| Post-lab Quizzes (in class) (6) | 60 points |
| Practical Exam 1 | 100 points |
| Practical Exam 2 | 100 points |
| Lab Manual Report/Questions | 20 points |
| Attendance | 20 points |
| Participation | 10 points |
| Tiny Earth Report | 30 points |
| Total | 400 points |

Quizzes and Exams:

- **Pre-lab Quizzes** are administered online in Canvas at the beginning of the week based on that week's topics
- **Post-lab Quizzes** are administered in person
- There are **two practical exams**. Exam questions may include short answers, fill-in-the-blank, multiple choice, identification, and practical questions. The duration of the practical exams is 1 hour. Exam **make-up** will be given only **with documented medical/university** excuses

- Quiz or Exam **grades will not be dropped**. If you arrive within 10 minutes of the exam starts, you will be allowed to enter the lab and finish the exam without extra time. No students will be allowed after 10 minutes.

If you have any questions about a graded item or believe there is an error in the grade, you must notify the instructor within 1 week after the grade is posted online.

Reports and Notebooks:

Students must bring their **lab manuals** to every lab to fill out the reports and questions. The points are allocated and will be a part of grade. No late work will be acceptable. There is project introduced in the middle of the semester and lab reports need to be printed and brought during the second half of the semester to be filled out in every class and submitted towards the end of the semester and the points are associated with it. No late lab report is acceptable.

Academic Integrity (UNT Policy 0.6.003)

Please refer Academic Integrity Policy (PDF),

(https://policy.unt.edu/sites/default/files/06.049_Standard%20Syllabus%20Policy%20Statements_supplement.pdf).

Every student can improve by **doing their own work** and trying their hardest with access to appropriate resources. Students who use other people's work without citations will be violating UNT's Academic Integrity Policy. Please read and follow this important set of guidelines for your academic success (<https://policy.unt.edu/policy/06-003>). If you have questions about this, or any UNT policy, please email supervisor or come discuss this with supervisor.

All quizzes and practical exams are to be taken independently. Cheating is not permitted, if a student is caught cheating in this laboratory, they will receive a zero for that grade opportunity and a note will be placed in their permanent file. Students can be dropped from the class with a **failing grade for plagiarism and/or cheating**.

Attendance (UNT Policy 06.039)

Students are expected to attend class meetings regularly and to abide by the attendance policy established for the course. It is important that you communicate with the supervisor and instructor prior to being absent, so we can discuss and mitigate the impact of the absence on your attainment of course learning goals. Please inform the supervisor and instructor if you are unable to attend class meetings because you are ill, in mindfulness of the health and safety of everyone in our community.

Research has shown that students who attend class are more likely to be successful. You should attend every class unless you have a university excused absence such as active military service, a religious holy day, or an official university function as stated in the Student Attendance and Authorized Absences Policy (PDF) (https://policy.unt.edu/sites/default/files/06.039_StudAttnandAuthAbsence.Pub2_.19.pdf).

Microbiology lab meets two times a week (as assigned, Monday and Wednesday or Tuesday and Thursday) **in person**. No online lab is offered. **Attendance in the lab is mandatory**. The BIOL 2042 class is a hands-on, lab-based course, and because a successful laboratory experience is dependent upon regular attendance, the instructor/lab supervisor **reserves the right to drop** any student from the course with a W if the student is absent for **more than two (2) absences** during the semester. If, due to circumstances beyond your control, you have to miss a lab, you must contact your lab instructor prior to the absence (Exceptions are absences that are

medical or University-sponsored). Your safety and well-being are important to us. If a lab is missed (unexcused), the student will get a zero for attendance.

A student is considered absent if the student comes to the lab **after 15 minutes** into the lab period. They are not allowed to enter the lab. The door will be closed. The lab will meet the entire duration of the scheduled time. Students leaving early will be marked as absent for that day. No student will attend another section without permission from the supervisor. Permission will be given to the students only with an appropriate excuse. Supervisor has the right to say NO, if the excuse is illegit.

Students are responsible for letting the instructor know of the following absences for make-up:

- Professional school interviews
- Conference attendance
- Receiving awards such as scholarships or other academic honors
- Missing class due to being waitlisted (only applicable prior to census date)
- Personal travel
- Short-term illness and doctor appointments (Flu, COVID, Strep, cold etc,) (need doctor's note)

Dean of students will be only notified if the absences are due to

- Temporary disability or injury
- Extended medical absences or hospitalization
- Illness of a dependent family member
- Major illness or death of a loved one, which may include immediate family members of the student, spouses/partners, and others as deemed appropriate by the Dean of Students office
- Car accident that takes away transportation
- Housing emergencies
- Significant mental health concerns

Cell phones

Cell phones are not allowed in microbiology 2042 labs. Cell phones must be turned "off" and stored in your personal bag at all times while working in microbiology labs. If you have your cell phone with you or in your cubby, you will be asked to leave the lab and will get a zero in participation for the day. Leaving the lab to take phone calls or text will be considered an absence for the day (Consult TA if it is an emergency). All Smart watches and earbuds must be stored in your personal belongings during **laboratory times and exam dates**.

Safety

Students must follow Laboratory Safety Rules (**as always instructed by Lab Instructor**) while working in the Microbiology lab. Failure to do so will result in points deduction from your participation grade. No closed-toe shoes, no long pair of pants = no lab, students must leave the lab and will be absent for the day. Gloves should not be worn outside the lab at any time. Students will sign a **safety roster**, stating that the students understand and will follow the safety/lab rules given to them.

Lab Policies

If you miss a lab, you are responsible for the information covered that day. All work is done independently unless explicitly instructed otherwise. Students may leave the lab only after checking with his/her lab instructor. Students are responsible for keeping their benches disinfected, clean and re-stocked with any materials needed. (List posted on each bench)

Participation:

For participation grade, points will be deducted for each safety violation and violation against UNT and lab policies.

University of North Texas Policies

- It is the student's responsibility to be aware of all UNT policies and deadlines
- Student Code of Conduct
- Dropping courses or withdrawing.
- All other policies

Academic Success Resources

UNT strives to offer you a high-quality education and a supportive environment, so you learn and grow. As a faculty member, I am committed to helping you be successful as a student. To learn more about campus resources and information on how you can be successful at UNT, go to unt.edu/success and explore unt.edu/wellness. To get all your enrollment and student financial-related questions answered, go to scrappysays.unt.edu.

You **must** note that students will be notified by Eagle Alert if there is a campus closing that will impact a class and describe that the calendar is subject to change, citing the [Campus Closures Policy](https://policy.unt.edu/policy/15-006) (<https://policy.unt.edu/policy/15-006>).

Additional Notes

Do not wait until the last minute to ask for help. If you are having trouble with this class, please go to your lab instructor's posted **office hours (3 hours week)**. If you cannot attend your instructor office's hours, schedule an alternate time to meet. If you still have questions, please email or come to the supervisor (me) to discuss. During busy times, my (supervisor's) inbox becomes rather full, so if you contact supervisor and do not receive a response within **two** business days, please send a follow up email. A gentle nudge is always appreciated. Have a great semester!

Tentative Course Schedule

Syllabus is tentative and subject to changes: Any changes to the printed schedule, including pre-lab readings or quizzes will be announced in lab or Canvas in case of weather events.

| Days | Date | Lab Exercise | Lab Numbers (Hughes/Tiny Earth) |
|------|-----------|--|------------------------------------|
| M/T | Jan 12/13 | NO CLASSES | |
| W/R | Jan 14/15 | Laboratory Introductions, Lab Safety, Microscopes. Mandatory class | vii-viii, Lab 1 |
| M/T | Jan 19/20 | Martin Luther King Day (NO Classes on Monday and Tuesday) | |
| W/R | Jan 21/22 | Culture Media Preparation Census day, Jan 24 | Lab 2 |
| M/T | Jan 26/27 | Online pre-lab quiz 1 , Inoculation of media, Aseptic techniques, Bacterial Nomenclature | Lab 3, 4 |
| W/R | Jan 28/29 | Post lab Quiz 1 , Colony morphology, Smear Preparation, Gram stains | Lab 4, 6, 8 |

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|------------|------------------|---|-----------------------------------|
| M/T | Feb 2/3 | Online pre-lab quiz 2 , Gram stain continues, Spore Stain, Acid Fast Stain | Lab 9, 10 |
| W/R | Feb 4/5 | Micropipette usage, Environmental influences: Effect of Temperature, Oxygen tolerance | Lab 11 (Page 71-72), 12, 14 |
| M/T | Feb 9/10 | Online pre-lab quiz 3 , Growth of Anaerobes: Biobag, Environmental influences: Effects of pH, Commensalism | Lab 14, 15, 23 (Commensalism) |
| W/R | Feb 11/12 | Post lab Quiz 2 , Environmental influences: Lethal Effects of UV, Osmolarity | Lab 13, 16 |
| M/T | Feb 16/17 | Online pre-lab quiz 4 , Controlling Microorganisms: Antiseptic and Disinfectants Antibiotics and Antimicrobials | Lab 17, 18 |
| W/R | Feb 18/19 | Water analysis, Catalase test, Negative Stain | Lab 22, 14 (98-100), 5 |
| M/T | Feb 23/24 | Online pre-lab quiz 5 , Fungi: Filamentous molds and yeast, Lichen | Lab 20, 23 (Mutual) |
| W/R | Feb 25/26 | Post lab Quiz 3 , The Tiny Earth Project Introduction and Soil collection Review for Practical Exam 1 | TE Section 1, 2 |
| M/T | Mar 2/3 | PRACTICAL EXAM 1 | |
| W/R | Mar 4/5 | Isolating Microbes from soil (Soil Sample Data Collection Sheet), Review for Practical Exam 1 continues | Lab 11, TE Section 3 |
| M/F | Mar 9-13 | Spring Break (No classes) | |
| M/T | Mar 16/17 | Online pre-lab quiz 6 , Microbial survey: Cyanobacteria, Protozoa, Algae | Lab 21, 23 (Parasitism) |
| W/R | Mar 18/19 | Post lab Quiz 4 , Calculating CFU/ml, Master Plates of isolates | Lab 11, TE Section 5 |
| M/T | Mar 23/24 | Online pre-lab quiz 7 , Meet the ESKAPE pathogens and their safe relatives, start preparing for ESKAPE presentation | TE Section 6 |
| W/R | Mar 25/26 | Antibiotic discovery, Assess antibiotic production by isolates, gram stain of the isolate | TE Section 7, 10, 23 (Antagonism) |
| M/T | Mar30/Mar31 | Online pre-lab quiz 8 , Identification of soil isolates: PCR of 16S rRNA sequences, ESKAPE presentation | TE Section 8 TE Page 155-158 |
| W/R | Apr 1/2 | Post lab Quiz 5 , Gel Electrophoresis, ESKAPE presentation continues | TE Page 123-125 |
| M/T | Apr 6/7 | Online pre-lab quiz 9 , The viruses: Bacteriophage, Starch hydrolysis test | Lab 26, 30 |
| W/R | Apr 8/9 | Epidemiology, Introduction to BLAST Last day to withdraw with a W, Apr 10 | Lab 19 |
| M/T | Apr 13/14 | Online pre-lab quiz 10 , Microbial Genetics: Transformation, Conjugation | Lab 24, 25 |
| W/R | Apr 15/16 | Post lab Quiz 6 , Identification of organisms: Blasting, Review for Final Exam | Notes on Canvas |
| M/T | Apr 20/21 | Biochemical Testing, Oxidase test, TE report in person and online due (Take pic of TE report and submit online) | Lab 27-30, Lab 14 (99) |
| W/R | Apr 22/23 | Develop Biochemical tests, Review for Final Exam continues , Hughes manual due | Lab 27-30 |
| M/T | Apr 27/28 | PRACTICAL EXAM 2 | |

Students will be notified by Eagle Alert if there is a campus closing that will impact a class and you will find information in Emergency Notifications and Procedures Policy (PDF), (https://policy.unt.edu/sites/default/files/06.049_Standard%20Syllabus%20Policy%20Statements_supplement.pdf).