BIOL 2421 Microbiology for Majors
Course Syllabus: Summer 2024

"Northeast Texas Community College exists to provide personal, dynamic learning experiences empowering students to succeed."

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Office Hours	Monday	Tuesday	Wednesday	Thursday	Friday and Weekends
	By appointment or TEAM Meetings Available Upon Request	By appointment or TEAM Meetings Available Upon Request	By appointment or TEAM Meetings Available Upon Request	By appointment or TEAM Meetings Available Upon Request	Email lpresley@ntcc.edu

This syllabus serves as the documentation for all course policies and requirements, assignments, and instructor/student responsibilities.

Information relative to the delivery of the content contained in this syllabus is subject to change. Should that happen, the student will be notified.

Course Description: 4 Semester Credit Hours.
Lecture/Lab/Clinical: Three hours of lecture and three hours of lab each week.
Principles of microbiology, including metabolism, structure, function, genetics, and phylogeny of microbes. The course will also examine the interactions of microbes with each other, hosts, and the environment. Laboratory activities will reinforce principles of microbiology.

Prerequisite(s): BIOL 1406, BIOL 1407, and CHEM 1411

COURSE Student Learning Outcomes:
Upon successful completion of this course, students will:
1. Apply scientific reasoning to investigate questions and utilize scientific tools such as microscopes and laboratory equipment to collect and analyze data.
2. Use critical thinking and scientific problem solving to make informed decisions in the laboratory.
3. Communicate effectively the results of scientific investigations.

4. Provide examples of the impact of microorganisms on agriculture, environment, ecosystem, energy, and human health, including biofilms.
5. Identify unique structures, capabilities, and genetic information flow of microorganisms.
6. Compare the life cycles and structures of different types of viruses.
7. Discuss how microscopy has revealed the structure and function of microorganisms.
8. Give examples of the range of metabolic diversity exhibited by microorganisms, impact of metabolic characteristics on growth, and control of growth.
9. Describe evidence for the evolution of cells, organelles, and major metabolic pathways from early prokaryotes and how phylogenetic trees reflect evolutionary relationships.
10. Describe the causes and consequences of mutations on microbial evolution and the generation of diversity as well as human impacts on adaptation.
11. Classify interactions of microorganisms on human and non-human hosts as neutral, detrimental, or beneficial.

Evaluation/Grading Policy:

Lecture Average 70% of final course grade

The "lecture" component of this course will consist of online homework/quizzes through McGraw-Hill Connect, a research project, and examinations with the following weight in calculating your final average:

5% Research Project

5% Connect Homework and Quizzes

30% Unit Assessments

10% Midterm Test (Unit 1 and 2) Taken at Testing Center

20% Final Exam (Cumulative) Taken at Testing Center

Unit Tests

Unit Tests are **in an electronic format and taken with Connect.** Unit Tests include multiple choice, true false, and short answer questions.

Midterm and Final Exams

The midterm and final exams are **taken at the Testing Center and are in electronic format**. You MUST schedule a time at the NTCC testing center to take your midterm and final exams. The midterm exam is over material from Units 1 and 2. The final exam is multiple-choice and true false questions and is cumulative covering material from Units 1, 2, 3, 4, and chapters 37, 38, and 39.

Research Project

During the semester, in consultation with the instructor, you will conduct a research project.

Lab Average 30% of final course grade

The "lab" component of this course will consist of online and hands-on laboratory activities through Connect and Science Interactive Lab Kit experimental procedures.

5 % Identification of Bacterial Unknowns: Connect Virtual Labs and ID of Unknowns Quiz
10% Science Interactive Labs 1 – 12

15% Lab Practicals/Assessments (Mid-term and Final) Taken at Testing Center

The labs within this course are important learning activities to help you master many of the learning outcomes in the course. To receive credit, all short-answer questions should be answered using complete sentences in your own words describing work that you have completed. Labs are graded based on documented evidence of completion of the lab exercise. Many labs require photos to be uploaded, data tables to be completed, and successful answering of questions presented. When photos are required as a component of a lab submission, work submitted without photos uploaded will receive an automatic zero. Completion of data tables is equally important. An icon for photo submission and data table completion is labeled "Data" and is located in the lower right corner of your lab experimentation page. Lab Reports that show evidence of being copied from any web site or are identical with any other submitted reports will be given a grade of zero. Lab reports will generally be graded within a week of submission and feedback on your techniques or results will be included.

The Science Interactive Lab Kit contains almost all the materials that you will need. There are a few items that you should be prepared to supply to complete some labs. These include but are not limited to the following: access to a microwave oven or hot water bath; isopropyl (rubbing alcohol); local tap water, household bleach, etc. Please be sure to review all the materials in your lab kit and check them off with the list of the content that is included to be sure you have all materials. You should contact Science Interactive if there are any missing components of your kit and Science Interactive will replace the missing items.

*See Connect description in the Appendix of Additional Information located on the last pages of the syllabus.

Final Grades will be determined as follows:

90.0 --- 100 = A
80.0 --- 89.9 = B
70.0 --- 79.9 = C
60.0 --- 69.9 = D
59.9 and < = F

Required Instructional Materials:

Textbook: Willey, et. al, Prescott's Microbiology, 12th Edition with Connect and Learn Smart Labs
Publisher: McGraw Hill **ISBN Number:** 9781264776771

Lab Materials: Kit # **SI-10815-MB-01** Science Interactive Lab Kit

Minimum Technology Requirements: Students should have the following programs, software and operating system on their computers prior to participating in online courses. Frequently online instructors use these programs and software. The instructor will not accept written work from students who are using incompatible programs.

	Windows	Mac	Linux	Chrome OS
Operating System	Windows 7+	macOS 10.11+	Ubuntu 18.04+	Chrome 58+
Processor	Intel Pentium or better	Intel	Intel Pentium or better	Intel or ARM
Free Disk Space	250 MB	250 MB	250 MB	250 MB
Free RAM	2 GB[1]	2 GB[1]	2 GB[1]	1 GB[1]
Upload Speed	0.092 Mbps - 0.244 Mbps[2]			
Microphone	Any Microphone, either internal or external[3]			
Webcam	320x240 VGA resolution (minimum) internal or external[3]			

Required Computer Literacy Skills: To succeed in online courses, you will need basic computer skills that include how to use email, attach a document to an email message, navigate web pages, download and upload files. You will need to participate in discussion forums and use the Internet to research information. Additionally, you will need a computer with regular access to a reliable Internet connection, a current web browser (such as Chrome or Firefox), a technology "back-up" plan in case your primary computer is unavailable. Homework and quizzes are assigned using McGraw-Hill Connect. Each assignment or quiz will be due at a specific time in the semester related to the lecture schedule.

You will have the best results if you connect using a cable modem or Ethernet—or, if using a smart phone or tablet, over a 4G network. Use a wired connection, whenever possible, as it is more stable and often faster than wireless connections. Your connection will be smoothest if you are able to download data at a rate of at least 5 Mbps (megabits-per-second). Keep in mind that connection speed and Internet performance varies depending on the number of programs and computers sharing your connection, and also the amount of Internet traffic in your area. As a result, your connection speed may fluctuate during a live session. To get a sense for your connection speed, you may test it here: http://www.speedtest.net/.

Communications: NTCC email is the official form of communication used by the college. The instructor will respond to student emails within 24 hours of receipt. **You should NOT expect an immediate response from your instructor in reply to your email.** While I will try to respond in a timely fashion, I do not always have my phone on my person, and I do not have notifications set on my phone to alert me the moment an email arrives in my inbox. (On the weekends it may be up to 48 hours after receipt of

email.) Feedback and grades on assignments and postings will be posted 48 to 72 hours after due date/time of assignment.

Institutional/Course Policy: Northeast Texas Community College is a "community of scholars." Please remember that you and all students in this class are pursuing very important goals in your lives. As scholars, I expect every student to be courteous to other students and the instructor in all online experiences. As your instructor, I will make a conscientious effort to provide you with a variety of teaching and learning formats to help you in your efforts to be successful in microbiology.

I care about your learning experience and your success in this course, however that ultimate success does depend largely on **YOU**. Your success can be maximized and your potential achieved by making the commitment to meet these online expectations:

1. Schedule and plan to complete all lecture and laboratory assignments and submit them when they are due. Be sure to print off the calendar to help you keep up with assignment due dates. Late assignments are not accepted unless the student can provide a compelling reason for submitting late work. No tests or exams may be taken late.
2. Be sure to do all your own work. Collusion and plagiarism are acts of academic dishonesty.
3. The last day to drop the course with a grade of W is **August 1, 2024.** If circumstances require you to withdraw from this course, you must do so by that date. It is the student's responsibility to initiate the withdrawal with the registrar's office. Failure to officially withdraw will result in your receiving a grade of F.

Alternate Operations During Campus Closure and/or Alternate Course Delivery Requirements

In the event of an emergency or announced campus closure due to a natural disaster or pandemic, it may be necessary for Northeast Texas Community College to move to altered operations. During this time, Northeast Texas Community College may opt to continue delivery of instruction through methods that include, but are not limited to, online through the Blackboard Learning Management System, online conferencing, email messaging, and/or an alternate schedule. It is the responsibility of the student to monitor NTCC's website (http://www.ntcc.edu/) for instructions about continuing courses remotely, Blackboard for each class for course-specific communication, and NTCC email for important general information.

Additionally, there may be instances where a course may not be able to be continued in the same delivery format as it originates (face-to-face, fully online, live remote, or hybrid). Should this be the case, every effort will be made to continue instruction in an alternative delivery format. Students will be informed of any changes of this nature through email messaging and/or the Blackboard course site.

Statement Regarding the Use of Artificial Intelligence (AI) Technology:

Absent a clear statement from a course instructor, use of or consultation with generative AI shall be treated analogously to assistance from another person (collusion). Generative AI is a subset of AI that utilizes machine learning models to create new, original content, such as images, text, or music, based on patterns and structures learned from existing data (Cornell, Center for Teaching Innovation). Unauthorized use of generative AI tools to complete an assignment or exam is not permitted. Students should acknowledge the use of generative AI and default to disclosing such assistance when in doubt. Individual course instructors may set their own policies regulating the use of generative AI tools in their courses, including allowing or disallowing some or all uses of such tools. Students who are unsure of policies regarding generative AI tools are encouraged to ask their instructors for clarification. **(Adapted from the Stanford University Office of Community Standards-- accessed August 31, 2023) BIOL 2421 students should refrain from all use of AI. Evidence of use of AI will result in a grade of zero for assignment in which AI was used to complete.**

NTCC Academic Honesty/Ethics Statement:
NTCC upholds the highest standards of academic integrity. The college expects all students to engage in their academic pursuits in an honest manner that is beyond reproach using their intellect and resources designated as allowable by the course instructor. Students are responsible for addressing questions about allowable resources with the course instructor. Academic dishonesty such as cheating, plagiarism, and collusion is unacceptable and may result in disciplinary action. This course will follow the NTCC Academic Honesty and Academic Ethics policies stated in the Student Handbook. Refer to the student handbook for more information on these subjects.

ADA Statement:
It is the policy of NTCC to provide reasonable accommodations for qualified individuals who are students with disabilities. This College will adhere to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations as required to afford equal educational opportunity. It is the student's responsibility to request accommodations. An appointment can be made with the Academic Advisor/Coordinator of Special Populations located in Student Services and can be reached at 903-434-8264. For more information and to obtain a copy of the Request for Accommodations, please refer to the special populations page on the NTCC website.

Family Educational Rights and Privacy Act (FERPA):
The Family Educational Rights and Privacy Act (FERPA) is a federal law that protects the privacy of student education records. The law applies to all schools that receive funds under an applicable program of the U.S. Department of Education. FERPA gives parents certain rights with respect to their children's educational records. These rights transfer to the student when he or she attends a school beyond the high school level. Students to whom the rights have transferred are considered "eligible students." In essence, a parent has no legal right to obtain information concerning the child's college records without the written consent of the student. In compliance with FERPA, information classified as "directory information" may be released to the general public without the written consent of the student unless the student makes a request in writing. Directory information is defined as: the student's name, permanent address and/or local address, telephone listing, dates of attendance, most recent previous education institution attended, other information including major, field of study, degrees, awards received, and participation in officially recognized activities/sports.

Eagle Assist
At Northeast Texas Community College, we understand that students often need support that extends beyond the classroom. "Eagle Assist" is the place to start when looking for that type of assistance. Our support system is here to help you succeed in both your academic and personal growth. www.ntcc.edu/eagleassist

Services provided:

- Mental Health Counseling
- Classroom Accommodations
- NTCC Care Center Food Pantry
- NTCC Care Center Hygiene Closet
- NTCC Care Center Cook Nook
- Financial Literacy
- Child Care Assistance
- Emergency Aid

Can't find what you are looking for? Send us a message at eagleassist@ntcc.edu

Mental Health Counseling Services are available to all NTCC students.

- Visit the following page to get your account activated:

www.thevirtualcaregroup.com/ntcc

Tentative Course Timeline (*note* instructor reserves the right to adjust this timeline at any point in the term):

Week 1 Chapters 1 and 3 Evolution of Microorganisms and Microbiology and Bacterial Cell Structure
Week 2 Chapter 5 Eukaryotic Cell Structure; Chapter 6 Viruses and Other Acellular Infectious Agents
Week 3 Test 1;
Week 4 Chapter 7 Bacterial and Archaeal Growth; Chapter 8 Control of Microbial Growth in the Environment
Week 5 Chapter 9 Antimicrobial Chemotherapy; Test 2;
Week 6 Midterm Chapter 10 Introduction to Metabolism; Chapter 11 Catabolism: Energy Release and Conservation;
Week 7 Chapter 13 Bacterial Genome Replication and Expression and Chapter 14 The *lac* Operon; Test 3
Week 8 Chapter 31 Innate Host Resistance; Chapter 32 Adaptive Immunity; Chapters 34 and 35 Infection and Pathogenicity and Epidemiology and Public Health Micro
Week 9 Test 4; Chapter 37 Human Diseases Caused by Viruses and Prions; Chapter 38 Human Diseases Caused by Bacteria
Week 10 Chapter 39 Human Diseases Caused by Fungi, Protists, (and Helminths);
Week 11 Comprehensive Final (Units 1 – 4 and Chapters 37, 38, and 39)

Appendix of Additional Information:

***What is McGraw-Hill Connect?**

The McGraw-Hill Connect provides you with access to your ebook.

Additionally, within each Connect Folder in Blackboard you will see a link to two different activities: 1) SmartBook and 2) Quiz.

1) **SmartBook assignments are figured into your course grade**. SmartBook assignments are beneficial to your understanding of the material. This guided reading helps identify areas that you are having trouble understanding and provides you with some "tutoring" in those areas. I have set the SmartBook to take average of 90 minutes, however, you can spend as much time on these reading activities as you need. Completion of the SmartBook assignments results in a completion grade of 100.
2) **Quizzes are required and figured into the course grade**. Quizzes are usually 20 – 25 questions with a time limit of 30 minutes. Please use these quizzes to determine whether you have a true understanding of the material. Each quiz can be taken 2 times before the due date. Five percent will be deducted for the 2nd try, but I have set the quizzes and the homework assignments to take the highest grade, so it is to your advantage to correct your work and review the questions. The quizzes will be submitted automatically on the due date.

Inclusive Access: We have negotiated with the Publisher to obtain a discounted price for your lecture course materials. Your ebook and Connect Access Code are included with your tuition and will be

available through Blackboard on the first-class day (use the link found on the Bb course homepage). The materials are required for your class and essential in your success. If you also determine that you would like a print copy of your text in addition to your inclusive access loose- leaf copies will be available in the College Store at a discounted price. You may opt out of purchasing your materials from the College Store through the Census Date for the course. If you choose to opt-out you will be responsible for purchasing your Connect Access Code from another vendor. You will receive a refund for the Inclusive Access if you opt out.