

BIOLOGY 2420: MICROBIOLOGY
DR. TORI HALL, PH.D.
COURSE SYLLABUS FALL 2026

CONTACT INFORMATION:

Tori Hall, Ph.D.

thall@southplainscollege.edu

Office: S140

My email gets flooded daily. This is one of the reasons **I do not communicate with students through my email and will not respond to student emails.** If you want a response to your message, you must reach out to me within course messages. **Please expect a response to your message on the next business day.**

Office Hours:

M: 8:30 AM - 9:30 AM

T: 9:00 AM - 12:00 PM, 1:00 PM - 3:00 PM

W: 8:30 AM - 9:30 AM

R: None

F: 9:00 AM - 10:00 AM

PREREQUIREMENTS FOR MICROBIOLOGY: TSI compliant in Reading, Writing and Math.

A. REQUIRED TEXTS:

1. **TEXTBOOK:** Microbiology Openstax Textbook. ISBN: 9781938168147
 - o **Available free online** (I do not recommend buying this book... the online version is the same and is more than adequate for this course)
 - o **HOW TO ACCESS THE TEXTBOOK:**
 - A. Go to: <https://openstax.org>
 - B. Click on "Subjects" icon
 - C. Click on "Science"
 - D. Click on "Microbiology" – our book is the only microbiology textbook available.
 - E. I highly recommend that you download the PDF format of this book in order to have access to the page numbers of the book.
2. **STUDENT NOTE PACKET:** Microbiology (BIOL 2420) Student Note Packet, Dr. Tori Hall. This is **available for free on Blackboard.**
3. **BASIC CALCULATOR**
4. **ONLINE RESOURCES:** Posted as appropriate by Dr. Hall.

B. COURSE DESCRIPTION:

This is a general microbiology course that covers the morphology and physiology of microorganisms with particular emphasis on the microbial relationship to disease, pathogenicity, and the immune response. This course is designed for students entering the allied health profession such as: nursing, respiratory therapy, dental hygiene, etc... This course satisfies the requirements for an Associate in Arts and Associate in Science degree as well as requirements for transfer students working toward a Bachelor of Arts degree, Bachelor of Science degree, or certification in allied health fields.

Please note: This course is designed for allied health professionals and will not provide Microbiology credit for Biology majors, Pre-Med, Pre-Dentistry, or Pre-Vet. **This course is not a core science curriculum course.**

C. COURSE OBJECTIVES AND STUDENT LEARNING OUTCOMES: Upon successful completion of this course, students will:

Lecture:

1. Describe distinctive characteristics and diverse growth requirements of prokaryotic organisms compared to eukaryotic organisms.
2. Provide examples of the impact of microorganisms on agriculture, environment, ecosystem, energy, and human health, including biofilms.
3. Distinguish between mechanisms of physical and chemical agents to control microbial populations.
4. Explain the unique characteristics of bacterial metabolism and bacterial genetics.
5. Describe evidence for the evolution of cells, organelles, and major metabolic pathways from early prokaryotes and how phylogenetic trees reflect evolutionary relationships.
6. Compare characteristics and replication of acellular infectious agents (viruses and prions) with characteristics and reproduction of cellular infectious agents (prokaryotes and eukaryotes).

7. Describe functions of host defenses and the immune system in combating infectious diseases and explain how immunizations protect against specific diseases.
8. Explain transmission and virulence mechanisms of cellular and acellular infectious agents.

Lab:

1. Use and comply with laboratory safety rules, procedures, and universal precautions.
2. Demonstrate proficient use of a compound light microscope.
3. Describe and prepare widely used stains and wet mounts and discuss their significance in identification of microorganisms.
4. Perform basic microbiology procedures using aseptic techniques for transfer, isolation and observation of commonly encountered, clinically significant bacteria.
5. Use different types of bacterial culture media to grow, isolate, and identify microorganisms.
6. Perform basic bacterial identification procedures using biochemical tests.
7. Estimate the number of microorganisms in a sample using methods such as direct counts, viable plate counts, or spectrophotometric measurements.
8. Demonstrate basic identification protocols based on microscopic morphology of some common fungi and parasites.

D. COMPUTER REQUIREMENTS:

Students are not required to purchase their own computer but must have access to one that meets the specifications for this course. The computer must be able to connect to and allow the student to browse the internet. **E-mail access is required.** If a student's internet connection goes down, or a student's computer crashes or otherwise becomes inoperable for blackboard, it is the responsibility of the student to have their internet connection and/or computer repaired as soon as possible to avoid getting behind in the class. While the computer and/or internet connection is being repaired, the student should seek an alternate computer.

Internet problems and/or the crash or inoperability of a computer will not be an acceptable excuse for being late with assignments, assessments, and/or exams (if applicable). It is the responsibility of the student to have a backup plan in place. If the blackboard server goes down, the appropriate time extensions will be determined and announced by the instructor.

E. HOW TO SUCCEED IN THIS COURSE:

Microbiology is a challenging subject. It is information dense, cumulative, and requires you to think conceptually, not just memorize terms. If you're feeling stretched, that is not a sign that you are incapable! It is a sign that you are being challenged at a collegiate level.

However, this is a high-level lab science course and you are responsible for your own learning. I can provide structure, resources, guidance, and clarification, but I cannot study for you, manage your time for you, or practice retrieval for you. Success in this class requires consistent, intentional effort outside of class, on your own.

Let's talk study strategies. First up: **time management expectations** (this is straight from the literature, not my personal opinion).

- **16-week courses require 12 hours of study per week outside of class (minimum)**
- **8-week courses require 20 hours of study per week outside of class (minimum)**
- **5-week courses require 30 hours of study per week outside of class (minimum)**

You should plan to study every day for the entire duration of the course. If you are not scheduling this time deliberately, your retention will suffer. Put study blocks in your calendar like appointments and stand firm in keeping them.

If you are struggling to retain information, here are some tried and true strategies that have been proven to work (with decades of research to support them):

1. **Practice active recall (not re-reading).** Close your notes and write or say everything you remember about a topic (e.g., gram-positive vs. gram-negative cell walls). Then check for gaps. This is far more effective than highlighting or rereading.
2. **Use spaced repetition.** Study material multiple times over several days rather than cramming. Short, repeated sessions build long-term memory.
3. **Teach the material out loud.** If you cannot explain viral replication or the immune response without looking at your notes, you do not yet understand it deeply enough.
4. **Make concept maps.** Microbiology is highly interconnected. Draw relationships between structures, mechanisms, and outcomes.

5. **Study in advance of confusion.** Do not wait until you are lost. Engage with material before lecture and review within 24 hours afterward, and daily thereafter.

Regarding AI tools... AI can support your studying, but it cannot replace your thinking. **If used correctly**, it can help you generate practice questions, quiz yourself, ask for explanations in a simpler more basic language, create comparison tables, and test your understanding by explaining concepts and asking the AI to critique gaps. **If AI tools are used incorrectly**, AI becomes a shortcut that prevents learning (e.g., copying summaries without processing them). If you use AI, use it to challenge yourself, not to bypass effort. Here is a list of some of the AI tools that I've either personally used, or have had students who have used and said they loved:

1. **NotebookLM** - this is a tool where you upload your material (notes, PDFs, slides, videos) and it can generate summaries, flashcards, quizzes, study guides, concept maps, and audio overviews (in the form of a podcast) where you can listen to the material in a different way.
2. **MindGrasp** - This tool is similar to NotebookLM (minus the podcast component) that can convert lectures, notes, and videos into summaries, flashcards, and practice quizzes.
3. **Humata4** — look into this one. It's constantly changing and evolving to be better with each new iteration.
4. **App.youlearn.ai** — also very similar to NotebookLM.

F. POLICIES, PROCEDURES, AND RULES

COURSE CONTENT:

This course will be conducted according to the policies and procedures of the South Plains College Handbook and General Catalog. Scheduled lectures and/or labs are tentative and could be subject to change by the professor. **Access your student E-mail and Announcements Tab on Blackboard regularly** as this is the primary mode of communication regarding important information and changes regarding class from professor to students.

ATTENDANCE POLICY:

- Punctual and regular attendance is expected for all Lecture and Lab meetings. All students are expected to be engaged, attentive, and interactive with the material, the professor, and other students when discussions are taking place in Lecture and Lab.
 - Daily participation and completion of assignments and/or assessments is fundamental to meeting the objectives of this course. Microbiology is a lab intensive course, therefore the completion of the weekly concept checks and lab handouts are vital to student success.
- Absences (for purposes of the final grade scale) will be documented starting from the first class meeting in the semester.
- If you have a valid/university approved reason for being absent, it is your responsibility to notify me, **before** the scheduled class meeting, so reasonable accommodations may be made. Students are also responsible for any and all material covered during any absence... best to communicate with fellow students to acquire this material.
- Any student that is absent for a total of **4 or more class days** (regardless of the reason), absent from **every class period for two consecutive weeks, does not complete an exam** (lecture or lab) for any reason, **does not complete 4 graded assignments** (at any time, for any reason), AND/OR **cannot meet the minimum course requirements** may be administratively withdrawn from the course, by the instructor, with a grade of an X.
 - If I notice that you are not progressing as I believe you should in the course, I will reach out via student email to try and determine what is occurring so that the proper course of action can be taken and the issue can be resolved.
- Students who enroll in a course but have "Never Attended" by the official census date, as reported by the faculty member, will be administratively dropped by the Office of Admissions and Records.
- All electronic devices must be on silent (not vibrate, but actually silenced) or turned off and put away during class/lab/exam time.
 - Should an electronic device ring/vibrate repeatedly during a meeting time, 5 points will be deducted from the student's next exam per incident
- Earbuds should not be worn at any time during class/lab/exams.
- No student is allowed to record the lectures, labs, or take photos/videos of the instructor without my permission.

EXAM POLICY: All of our exams (lecture exams and lab exams) will be timed. If taking exams online, Honorlock is also required for each exam taken. Please see the course schedule for due dates and times of all exams, and for the material covered for each exam. Lecture Exams will be multiple choice, matching, and true/false. Lab Exams will be short answer, fill in the blank, diagram completions, etc. **The Final Exam will be taken according to the SPC Final Exam Schedule and will be comprehensive. It is optional and can grade replace a student's lowest exam grade.** Exams are subject to change at any time during the course.

- All phones/smart watches/airpods/earbuds must be put away during exams.
- **MAKE-UP EXAM POLICY:** Students will be allowed to make up **1 lecture exam only** and only if it is a documented medical emergency. Student must contact the professor within 24 hours of the scheduled exam, must provide medical documentation and the makeup exam must be taken **within 2 business days of the missed scheduled exam**. If the student does not contact Dr. Hall within 24 hours of the missed scheduled exam, the missed exam grade will revert to a zero.
 - The Make-up Lecture Exam will be a **short answer/essay exam**.
 - There will be **NO make-up exams allowed for missed Lab Exams** or the **Final Exam**.

COURSE GRADE POLICY: Final grades will be tabulated based on the below grading scale. **There will be no exceptions and there are no curves in this course.** There is a document on blackboard (under "course resources") where each student can plug in their respected grades and calculate/estimate their final course average. The breakdown of this course is as follows:

LECTURE (72% OF OVERALL GRADE):

ALL LECTURE EXAMS	65%
LITERATURE REVIEW	7%
	72%

LAB (28% OF OVERALL GRADE):

LAB EXAM I	10%
LAB EXAM II	10%
ASSIGNMENTS	3%
UNKNOWN BACTERIA PROJECT	5%
	28%

<u>OVERALL TOTAL</u>	<u>100%</u>
----------------------	-------------

Letter Grade	Course Average
A	89.5 - 100%
B	79.5 - 89.4%
C	69.5 - 79.4%
D	59.5 - 69.4
F	0 - 59.4

WITHDRAWAL PROCEDURE:

It is the student's responsibility to withdraw from this course. Otherwise, students will be assigned their earned letter grade at the end of the course. Course averages will be updated twice each week, and guidance will be provided throughout the term to help students decide whether they need to drop the class or not. For more information regarding drops/withdrawals, please visit <https://www.southplainscollege.edu/admission-aid/apply/schedulechanges.php>.

If an assignment (including the Literature Review) is flagged as AI generated, the result will be a 0 for that assignment, and/or possible dismissal from the course. AI usage, when used and submitted as student generated authentic thoughts, is a form of plagiarism and SPC's official stance is AI usage in this way is prohibited.

ACADEMIC INTEGRITY AND DISHONESTY: Students are expected to do their own work on all lab simulations, assignments, quizzes, and examinations. Failure to comply with this policy (as laid out below) will result in an F for the assignment/exam and can result in an F for the entire course if circumstances warrant.

PLAGARISM VIOLATIONS include, but are not limited to, the following:

1. Turning in a paper that has been purchased, borrowed, or downloaded from another student, an online term paper site, or a mail-order term paper mill.
2. Turning in a paper or assignment that has been partially or fully generated using a large language model.
3. Cutting and pasting together information from books, articles, other papers, or online sites (including large language models) without providing proper documentation.
4. Using direct quotations (three or more words) from a source without showing them to be direct quotations and citing them; or
5. Missing in-text citations.
6. Using artificial intelligence (such as ChatGPT) to formulate answers and passing it off as original thought.

CHEATING VIOLATIONS include, but are not limited to, the following:

1. Obtaining an unadministered examination or contents by buying, stealing, selling, soliciting, or through collusion (in whole or in part);
2. The unauthorized transporting or removal, in whole or in part, of the contents of the unadministered test.

3. Discovering the content of an examination before it is given.
4. Using an unauthorized source of information (notes, textbooks, phones, text messaging, internet, apps, smartwatches, large language models) during an examination, quiz, or homework assignment.
5. Entering an office or building to obtain unfair advantage.
6. Taking an examination for another student.
7. Bribing another person to obtain an unadministered test or information about an unadministered test.
8. Collaborating with or seeking aid from another person during a test.
9. Altering grade records.
10. Copying another's work during an examination or on a homework assignment.
11. Rewriting another student's work in Peer Editing so that the writing is no longer the original student's.
12. Taking pictures of a test, test answers, or someone else's paper.

COPYRIGHT NOTICE: All material presented by the instructor in the course is copyright protected. The material presented by the instructor may not be modified or altered in any way. You have permission to print out one copy of any material presented by the instructor in this course (i.e., Syllabus, PowerPoint Presentations, videos, etc). The one copy must only be used for your personal educational use during this semester. The material may not be altered or modified in any way. The material may not be distributed in any way. You have permission to download the same material to your computer hard drive or other medium to print out the material needed. Any material downloaded may not be altered or modified in any way. The downloaded material may not be distributed in any way.

OFFICIAL SPC STATEMENTS:

South Plains College policies concerning Disabilities, Non-discrimination, Title IX Pregnancy and Parenting Accommodations, CARE (Campus Assessment, Response, and Evaluation), Intellectual Exchange, Campus Concealed Carry, COVID-19, and AI (Artificial Intelligence) can be found here: [Syllabus Statements](#).

Please note this syllabus is subject to change at any time, but especially if the course should be moved fully online or to some other format during the semester.

FALL 2026: BIOL 2420 SCHEDULE

WEEK 1: Intro/History of Microbiology, Biochemistry - Lab safety, Making Media, Microscopy

WEEK 2: Cell Theories/Prokaryotes/Eukaryotes – Negative stain, fungal/bacterial collection

WEEK 3: Labor Day - Lecture Exam 1

WEEK 4: Microbial Growth/Host-Microbe Interactions – Smear prep, simple stain, quad streak plate, gram stain, Lab exam Review

WEEK 5: Innate/Adaptive Immunity, Lab Exam 1

WEEK 6: Acquired Immunity, Lecture Exam 2 – Spore Stain and media prep

WEEK 7: *S. aureus*, *S. pyogenes*, *S. pneumonia*, *Diphtheria* – antibiotic plates, acid-fast stain, pasteurization/plate counts

WEEK 8: Tuberculosis, Pertussis – Capsule stain, bacterial motility, flagella arrangements, begin unknown bacteria project

WEEK 9: STIs, Lecture Exam 3 – Unknown Project day 2

WEEK 10: Intro to Viruses, Ebola, COVID-19 – Unknown Project day 3 and 4

WEEK 11: Hepatitis, Influenza – Unknown Project day 5 and 6

WEEK 12: HIV/AIDS, Lecture Exam 4 - Unknown Project day 7

WEEK 13: Smallpox, Anthrax - Unknown Project day 8 and Lab Exam 2

WEEK 14: Botulism – protists lab

WEEK 15: The plague, Lecture Exam 5 – Lab Checkout

WEEK 16: Final Exam