

# BIOL 2305: Microbiology for Health Sciences

Fall 2021 • CRN # 64996 • Lecture & Lab



**Face to Face**  
**Lecture: Wed. 9:00am-10:15am**  
**VAHS Rm. 101**  
**Lab: Wed. 10:30am-1:15pm**  
**VAHS Rm. 110**

## Syllabus

### COURSE INFORMATION

This course introduces the basic principles of microbial structure, genetics and physiology, virology, parasitology, disease, pathogenicity, epidemiology, and immunology. Only some emphasis is given to basic biological principles. The course is designed for those obtaining a career in the health sciences.

### Dr. T'S COURSE DESCRIPTION

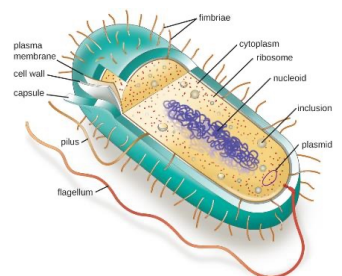
I love teaching Microbiology—the study of microorganisms. We will start by learning about the different types of microorganisms, bacteria, fungi, and viruses. We will focus most of the semester on bacteria—such interesting little organisms that have more helpful roles to humans than harmful. Can you imagine, we are each a planet to the bacteria on our bodies? First, we will learn about the bacterial cell components and how they grow- environmental requirements, nutrients, and metabolism. Next, we will discuss bacterial DNA- Yes, most microorganisms have it. We will observe that the process of DNA replication is universal, bacteria do have the same DNA components and proteins needed for replication. Have you ever thought about how bacterial cells dividing contribute to microbial pathogenicity? How does pathogenicity contribute to cause disease? These questions will be answered during our discussion of understanding the principles of pathogenicity, disease, and epidemiology. We will also discuss how our immune cells build and maintains a defense against microbial infections in our discussion of Innate and Adaptive Immunity. The last part of the semester we briefly study viruses, an acellular microorganism. Now, you know why I love teaching Microbiology— we learn about microorganisms that are too small to be seen with a naked eye, but can have huge impacts, more helpful than harmful, to humans and ecosystems everywhere on Earth.

Bring the knowledge that you have and take the journey with me as you continue reaching toward your educational goals.



“I hope to continue to inspire our nation’s youth to pursue careers in science, technology, engineering, and math so they, too, may reach for the stars.”

--ELLEN OCHOA The First Hispanic Woman to Go to Space.



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# Instructors Information

## Tammi R. Duncan, Ph.D.

Office: Rm 132, Arts & Sciences Building

Phone: 505-925-8726

Email: [tammid31@unm.edu](mailto:tammid31@unm.edu)

Drop-in Hours (Office hours):

- Face2Face: Mon. 10am-12pm, Tues. 2-3:30pm, Wed. 2-3:30pm, Thurs. 10:30am-11:30am.
- Zoom: Fri. Available by appt.  
<https://unm.zoom.us/j/5736149969>

I grew up riding horses on the Navajo Reservation and found my passion studying bacteria at Diné College in Shiprock, NM in my first microbiology course.

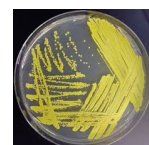
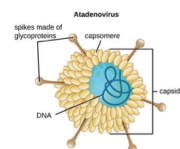
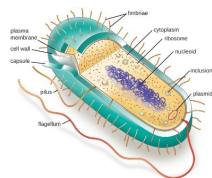
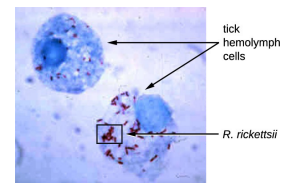


*"Strive for progress, not perfection." -Unknown*

## COURSE LEARNING OUTCOMES (CLO)

At the completion of this course, students will be able to:

1. Apply critical thinking and the information learned to problems encounter in Health-related professions
2. Have a basic understanding of cell structure for different types of bacteria.
3. Understand the metabolic mechanisms of prokaryotes and the use of these in classification systems
4. Understand the genetic mechanisms of prokaryotes and the nature of mutations
5. Have basic understanding of virus structure and function
6. Be able to describe the basic functions of the immune system with respect to infectious disease processes
7. Understand the principles of pathogenicity, disease, and epidemiology
8. Be able to explain the basics of antimicrobial and antiviral chemotherapy.
9. Basic microbiology lab skills.



The overall goal of the course is to help you become literate in these scientific concepts and be able to apply them in your life as you move forward in reaching your educational goal.

## REQUIRED LEARNING RESOURCES



1. **Electronic Textbook: *Microbiology*** by N. Parker, M. Schneegurt, A. Tu, B. Forster, and P. Lister, 2018, OpenStax Rice University. **REQUIRED.** Free download [https://assets.openstax.org/oscms-prodcms/media/documents/Microbiology-OP\\_C34GvqP.pdf](https://assets.openstax.org/oscms-prodcms/media/documents/Microbiology-OP_C34GvqP.pdf)



2. **UNM Learn:** <https://learn.unm.edu/>. The webpage contains resources you need to succeed in the course. Login using your UNM username and password. ***You are responsible for all announcements, assignments, quizzes, tests and/or any changes to the syllabus will be posted on the webpage. Please check regularly.***



3. **Respondus LockDown Browser:** <https://download.respondus.com/lockdown/download.php?id=35671441>. ***Using this browser, are responsible for taking required exams by the deadline.***

4. **Technology and computer:** In this course, you will need a dependable computer, reliable internet connection, computer speakers and **webcam**, Microsoft PowerPoint and Word, and Adobe Flash Player.

*"You don't understand anything until you learn it more than one way." -Marvin Minsky*

## TIPS FOR SUCCESS

**PowerPoint Slides.** Use the PowerPoint slides for each chapter to guide your reading and to identify the learning objectives. The Learning objectives should be used to test your knowledge of the material for each chapter.

**Study habits.** Your study habits that might have worked for you in high school, might have to be adjusted for college. Use metacognition, awareness and understanding of one's own thought process, to help you make adjustments in time and methods of your study habits. It's an ongoing process throughout your educational career. Plan time to review your Microbiology concepts everyday. I was encouraged as an undergraduate to think of attending college as an 8am-5pm job. The more you practice reanswering your concepts and learning objectives, the more you can remember it. Look at figures and read the chapter. It may take more than one reading to understand the material presented. Learn the vocabulary.



**Drop-in hours.** I am available to help you succeed in the class; stop by my office for face-to-face Drop-in hours or online via Zoom Drop-in (Zoom- Meeting ID: 573 614 9969 PW:5h8C25) and I can clarify information, coach you with homework, or bring up other methods besides flashcards to help you remember the material.

**Learning Center.** The learning center has tutors ready to help BIOL 2305 students. To register and set up an appointment, go to the following link: <https://valencia.unm.edu/campus-resources/the-learning-center/learning-center.html>

**Study groups.** Form online study groups or use the 6 ft guidelines at the UNM Valencia library. I always found that by hearing my explanation of the concept in my own words to my classmate helps me remember the information.

## TIPS FOR SUCCESS continue...

### Student Suggestions for studying

1. Record yourself reading the textbook and actively (meaning you are picturing what the words are describing) listen to it later.
2. You can also audio record the information on your flashcards to help you remember.
3. You can write a story in your own words about a mechanism to help you remember.
4. You can imagine you are tiny and picture yourself in one cell. Imagine you are on a trip through the cytoplasm, visualizing the mitochondria producing ATP or energy, and see how the DNA is being made.
5. You can use your body to picture things. For example, to picture the H<sub>2</sub>O water molecule, your hands can be the Hydrogens and your head can be the Oxygen. Your head is bigger than your hands, so it would have more electrons “hanging out” near it, therefore it is more electronegative.
6. You can also imagine your dog as a bacteria and his/her tail as a flagellum. Then you can take sticky notes and start labeling him/her. Or you can draw a big cell on a large piece of paper (or tape six notebook pieces of paper together) and use sticky notes to label the parts. In this practice- you can color code the parts that are in plants with green, the parts for animal cells in pink, and the parts for bacterial cells in black.
7. You can draw logos to describe a mechanism.
8. You can rewrite your notes or draw your notes out.
9. You can draw a [Concept Mapping: Chapter map](#) of what you are going to learn for the Chapter to help you see the big picture and orient you while you read the material.
10. You can use the Learning objectives at the end of the powerpoints as your chapter outline and while you read you can answer the questions as you go.
11. You can create analogies to help you remember the concept.
12. You can pronounce terms with a specific kind of pronunciation that will help you remember. For example, microtubules are small, hollow cylinders about 25um in diameter and 0.2-25um in length. I think of hollow as something that echos... so I would pronounce microtubules as an echo.... (sounds gets fainter and fainter). MICROTUBULES-MICROtubules-microtubules... written as a way that would get fainter and fainter.
13. Draw pictures in the word. For example, a nonstop mutation is mutation that changes an amino acid to a STOP codon. You can draw one of the o's as a  in the word, “nnstop”.
14. You can re-print your homework and pretend it is a test and take without your notes.



*What's nice about making your own study tools is that you can save it and re-use it to study for your final and it could be one way to have fun. Use colors, color pencils, sticky notes, music, smells, sounds and seek ideas from your peers –Dr. T*

## COURSE POLICIES

I will always be early to class (via face to face) so we can begin on time (and you can ask questions before we begin). I expect that you will contribute to a respectful atmosphere for learning.

**This is a four credit-hour hybrid (remote and face to face) course.** Class meets face to face for one 75-minute session of direct instruction and 2h 45 min for lab for fifteen weeks during the Fall 2021 semester. Students are expected to complete a *minimum* of six hours of out-of-class work (readings, homework, study, assignment completion, and class preparation) each week.

**Attendance.** You must be in the class on time to get the most out of this course, participate in class discussions, and to get a good grade. You are responsible for "signing-in" to document your attendance. The student will be held responsible for all material and information regardless of whether the student was in class. Exception will be made per student basis dependent on emergency. Due to the practical and hands-on activities for Microbiology lab, students will be dropped from the class after 3 absences. Attendance will be taken via a daily sign-in sheet. Excessive tardiness (greater than 10 minutes) will be counted as an absence.

**Make-up Exams.** Make-up exams will be given to students with a documented emergency. You must notify the instructor prior to the day of the missed exam.

**Homework.** These will be assigned weekly to help you master the concepts presented.

**Review.** There will be four Reviews. These will help you apply the knowledge that you have gained. One will be due before each regular exam.

**Case studies.** There will be three Case studies. These will help you build your critical thinking skills.

**Late assignment/homework.** Late assignments/homework will only be accepted within the first week following the due date. There will be a 50% reduction in grade. I will not accept assignments after the first week.

**Withdrawal.** If a student drops the course after the drop deadline, a "W" will be issued. I will not automatically withdraw a student if there are consecutive absences.

**Cell phones.** As a courtesy to the class, please turn off any cell phones. Please do not text message during class. Any sight of a cell phone during exams will result in an automatic fail for that assignment.

**Disruptive behavior.** Please avoid any disruptive behaviors in the classroom and online communications. For class, this includes going in and out of the class, texting, and talking. For online communication and interactions follow netiquette and dress for the meeting like you are attending class.

**Plagiarism.** Only submit work that is yours. Always cite any work used using APA format.  
<https://libguides.unm.edu/c.php?g=326014&p=2187071>

**Netiquette.** The rationale of providing **Rules of Netiquette** for students is to provide guidelines for online behavior and communication between you and your classmates. We (myself included) are all held to the following guidelines that will provide a safe and respectful online classroom space for constructive critiques, discussion, and scholarly reports between you and your classmates. These guidelines are expected to be upheld in any online communications (Email, Discussion Board Forums, Messaging, and Blogs) between all of us.

### **Rules of Netiquette continue.**

1. Your online behavior and communication should be similar to how you would treat and speak to a person in standing in front of you.
2. Be mindful of different backgrounds, which include cultural, linguistic, political, and religious differences.
3. Be respectful of other's views and opinions and try to remain open minded. You can have respectful disagreements. Avoid flaming, which is publicly attacking or insulting another person's view.
4. Provide constructive and concise responses to the subject of the posts in Discussion Forums and Blogs. Stay on topic, read all comments/viewpoints in discussion before contributing to discussion, avoid slang and profanity, be prepared to correct information if your comment is misunderstood or misinterpreted, and avoid using personal identifying information.
5. Practice good grammar and spelling skills. Use 12 pt. font Times New Roman or Calibri, avoid text shortcuts, define acronyms, use correct spelling, limit use of emoticons, and use clear and concise language.
6. Avoid the use of all CAPITAL LETTERS. It suggests shouting, impoliteness, or can be aggressive. Reread you post, checking for sarcasm, slang or anger, before submitting it. Avoid sending a message out of anger or written if you are angry.
7. Call your instructor if you are in conflict with them or another student.
8. In relation to security, protect your passwords and don't send confidential information through email. If you suspect your password has been used, change your password.
9. There are specific listings of practices for email netiquette and message board netiquette below.

### **Email Netiquette**

Write a concise email to @unm.edu accounts.

Include "Biol 2305" in your subject line to me.

Ask for permission of author before forwarding an email to classmate.

Include a formal salutation to your recipient.

### **Discussion Forum and Journal Netiquette**

Include "topic-your name" in subject line.

Write concise paragraph on the topic.

Paraphrase and cite your references with APA and credit classmates work if appropriate.

Read all messages in thread before replying.

Don't repeat another person's post.

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## **THINGS TO KEEP IN MIND**

### **Accommodations:**

If you have a documented disability and you need a reasonable accommodation made for you in this course, please consult with me immediately or the campus tutoring center as soon as possible so we can meet your needs suitably and quickly.

**Academic Dishonesty:** Each student is expected to maintain the highest standards of honesty and integrity in academic and professional matters. The University reserves the right to take disciplinary action, up to and including dismissal, against any student who is found guilty of academic dishonesty or otherwise fails to meet the standards. Any student judged to have engaged in academic dishonesty in course work may receive a reduced or failing grade for the work in question and/or for the course. Academic dishonesty includes, but not limited to, dishonesty in quizzes, tests, or assignments; claiming credit for work not done or done by others, hindering the academic work of other students; misrepresenting academic or professional qualifications within or without the University; and nondisclosure or misrepresentation in filling out applications or other University records.

**Equal Opportunity and Non-discrimination** In an effort to meet obligations under Title IX, UNM faculty, Teaching Assistants, and Graduate Assistants are considered “responsible employees” by the Department of Education (see page 15--[offices/list/ocr/docs/qa-201404-title-ix.pdf](#)). This designation requires that any report of gender discrimination which includes sexual harassment, sexual misconduct, and sexual violence made to a faculty member, TA, or GA must be reported to the Title IX Coordinator at the Office of Equal Opportunity ([oeo.unm.edu](#)). For more information on the campus policy regarding sexual misconduct, see: <https://oeo.unm.edu/title-ix/index.html>

## **COVID-19 SYLLABUS**

### UNM Administrative Mandate on Required Vaccinations

All students, staff, and instructors are required by [UNM Administrative Mandate on Required Vaccinations](#) to be fully vaccinated for COVID-19 as soon as possible, but no later than September 30, 2021, and must provide proof of vaccination or of a UNM validated limited exemption or exemption no later than September 30, 2021 to the [UNM vaccination verification site](#). Students seeking medical exemption from the vaccination policy must submit a request to the [UNM verification site](#) for review by the UNM [Accessibility Resource Center](#). Students seeking religious exemption from the vaccination policy must submit a request for reasonable accommodation to the [UNM verification site](#) for review by the [Compliance, Ethics, and Equal Opportunity Office](#). For further information on the requirement and on limited exemptions and exemptions, see the [UNM Administrative Mandate on Required Vaccinations](#).

UNM Requirement on Masking in Indoor Spaces: All students, staff, and instructors are required to wear face masks in indoor classes, labs, studios and meetings on UNM campuses, see [masking requirement](#). Students who do not wear a mask indoors on UNM campuses can expect to be asked to leave the classroom and to be dropped from a class if failure to wear a mask occurs more than once in that class. Students and employees who do not wear a mask in classrooms and other indoor public spaces on UNM campuses are subject to disciplinary actions. UNM will periodically evaluate and update the mask policy relative to public health concerns.

Communication on change in modality: The university may direct that classes move to remote delivery at any time to preserve the health and safety of the students, instructor and community. Please check your email and your UNM Learn site regularly for updates about our class, and please check <https://bringbackthepack.unm.edu> regularly for general UNM updates about COVID-19 and the health of our community.

Acceptable masks and mask wearing in class: A two-layer mask that covers the nose and mouth and that is cleaned regularly is acceptable, as are disposable medical masks, KN95, KF94, FFP1 and FFP2 masks. A face shield is not sufficient protection. It is vital that you wear your mask correctly, covering your nose and mouth. Removing your mask for an extended period to eat or drink in class violates the university mask requirement and endangers others.

Consequences of not wearing a mask properly: If you don't wear a mask, or if you do not wear a mask properly by covering your nose and mouth, you will be asked to leave class. If you fail to wear a mask properly on more than one occasion, you can expect to be dropped from the class. If you insist on remaining in the classroom while not wearing a mask, class will be dismissed for the day to protect others and you will be dropped from the class immediately.

The instructor will try to have a few disposable masks available in the classroom on a first-come, first-served basis.

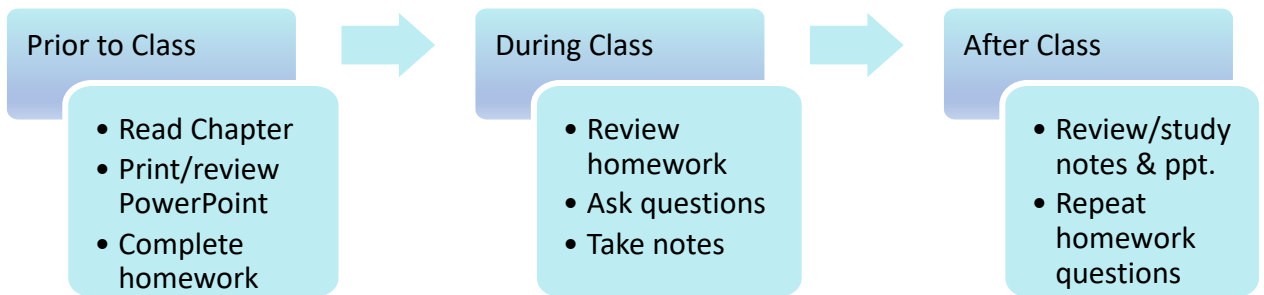
Citizenship and/or Immigration Status: All students are welcome in this class regardless of citizenship, residency, or immigration status. Your professor will respect your privacy if you choose to disclose your status. As for all students in the class, family emergency-related absences are normally excused with reasonable notice to the professor, as noted in the attendance guidelines above. UNM as an institution has made a core commitment to the success of all our students, including members of our undocumented community. The Administration's welcome is found on our website: <http://undocumented.unm.edu/>.

Support in Receiving Help and in Doing What is Right: I encourage students to be familiar with services and policies that can help them navigate UNM successfully. Many services exist to help you succeed academically and to find your place at UNM, see [students.unm.edu](http://students.unm.edu) or ask me for information about the right resource center or person to contact. UNM has important policies to preserve and protect the academic community, especially policies on student grievances (Faculty Handbook D175 and D176), academic dishonesty (FH D100), and respectful campus (FH CO9). These are in the *Student Pathfinder* (<https://pathfinder.unm.edu>) and the *Faculty Handbook* (<https://handbook.unm.edu>) Please ask for help in understanding and avoiding plagiarism or academic dishonesty, which can both have very serious disciplinary consequences.

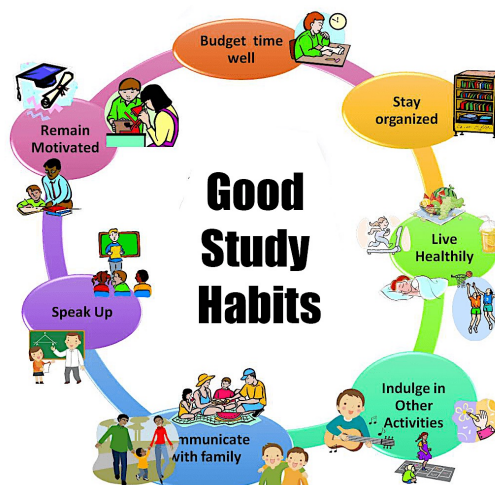
Land Acknowledgement: (see <https://diverse.unm.edu> on appropriate use) Founded in 1889, the University of New Mexico sits on the traditional homelands of the Pueblo of Sandia. The original peoples of New Mexico Pueblo, Navajo, and Apache since time immemorial, have deep connections to the land and have made significant contributions to the broader community statewide. We honor the land itself and those who remain stewards of this land throughout the generations and also acknowledge our committed relationship to Indigenous peoples. We gratefully recognize our history.

**DEVELOP GOOD STUDY HABITS. DON'T WAIT UNTIL THE LAST MINUTE.**

For class: Review notes and readings everyday.



In general:





## OVERALL GRADING CRITERIA

**Exams:** There are three exams. Each of these exams is worth 101 pts and their total is 303 pts. You will be given one hour to complete this exam. You will not be able to use your notes, textbook, or online resources. Review your homework and Review questions to prepare for your exam.

**Homework (HW):** Homework are question sets that are each worth 12 pts. Homework is due to UNM Learn at 11:59pm the Tuesday before class. Bring a printed copy to class. *Failure to submit to UNM Learn will result in an automatic deduction of 4pts.* Contact me if you like coaching on the topic.

**Case studies:** Three case studies that will help you build your critical thinking and self-assessment skills. Due to UNM Learn.

**Reflections:** Three Reflections on what and how you're learning and your approach/adjustments to learning the material will be issued. This is a practice of metacognition, (the process of "thinking about thinking," or reflecting on personal habits, knowledge, and approaches to learning) in order to help you adjust your learning. These Reflections are due to UNM Learn on the Fridays after completing an exam.

**Reviews:** There are four Reviews. The total is 72 pts. The goal of the review is to help prepare you for your exams.


**Attendance/Participation:** You must be in the class on time to get the most out of this course and participate. You are responsible for "signing-in" to document your attendance in class. If you are missing more than 15 minutes of class, it will count as an absence.

**Cumulative Final:** The Final is worth 125pts and given at the end of the semester. You will have 1.5 hours to take this exam online.

**Lab Activities:** Includes Lab Reports (7) , Lab Quizzes (5 of 6) , Midterm Exam (1), Final Exam (1), Unknown Lab Report (1) and Attendance and Participation (15). See page 11 for details.

*In summary, every point counts. There is no extra credit. The due dates are firm.*

*Communicate. Be on time. Study every day. Ask questions. Try your best. -Dr. T*

	Points per assignment:	Total Points:	Percentage of overall Biol 2305 grade (out of 1000pts):
Homework (12)	12 pts each	145 pts	~14.5%
Case Studies (3)	15 pts each	45 pts	~4.5%
Reflections (3)	10 pts each	30 pts	~3%
Attendance/Participation (15)	2 pts each	30 pts	~3%
Reviews (4)	18 pts each	72 pts	~7.2%
Exams (3)	101 pts each	303 pts	~30%
Cumulative Final Exam (1)	125 pts each	125pts	~12.5%
Lab Activities	(see page 11 for assignments)	250pts	~25%
<b>TOTAL</b>		1000 pts	100 %
<b>A+ 100% or higher</b> <b>A 91-99%</b> <b>A- 90%</b>	<b>B+ 88-89%</b> <b>B 81-87%</b> <b>B- 80%</b>	<b>C+ 78-79%</b> <b>C 71-77%</b> <b>C- 70%</b>	<b>D+ 68-69%</b> <b>D 61-67%</b> <b>D- 60%</b> <b>F &lt;60%</b>

## LECTURE COURSE SCHEDULE

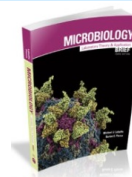
Week	Date	Chapter: Topic	Items Due	Due Date @ 11:59pm
1	8/23 to 8/27	Overview of Microbiology 1: Invisible World.	Homework 1: Intro. Online Intro. Online Exam	Fri. 8/27 Fri. 8/27
2	8/30 to 9/3	3: The Cell <b>Case Study 1</b>	Homework 2: Ch 1	Tues. 8/31
3	9/6 to 9/10	4.1: Prokaryotic Diversity & 9: Microbial Growth	Homework 3: Ch 3 <b>Case Study 1</b>	Tues. 9/7 <b>Fri. 9/10</b>
4	9/13 to 9/17	Review 1 (Ch. 1, 3, 4, 9)	Homework 4: Ch 4.1 & Ch 9	Tues. 9/14
5	9/20 to 9/24	<b>Exam 1 (Ch. 1, 3, 4, 9)</b> 8: Microbial Metabolism	Review 1 Exam 1 <b>Reflection 1</b>	Tues. 9/21 Wed. 9/21 <b>Fri. 9/24</b>
6	9/27 to 10/1	11: Mechanisms of Microbial Genetics	Homework 5: Ch 8	Tues. 9/28
7	10/4 to 10/8	13: Control of Microbial Growth <b>Case Study 2</b>	Homework 6: Ch 11	Tues. 10/5
8	10/11 to 10/15	14: Antimicrobial Drugs	Homework 7: Ch 13 <b>Case Study 2</b>	Tues. 10/12 <b>Mon. 10/18</b>
9	10/18 to 10/22	Review 2 ( Ch. 8, 11, 13, 14)	Homework 8: Ch 14	Tues. 10/19
10	10/25 to 10/29	<b>Exam 2 (Ch. 8, 11, 13, 14)</b> 15: Microbial Metabolisms of Pathogenicity	Review 2 Exam 2 <b>Reflection 2</b>	Tues. 10/26 Tues. 10/26 <b>Fri. 10/29</b>
11	11/1 to 11/5	16: Disease and Epidemiology <b>Case Study 3</b>	Homework 9: Ch 15	Tues. 11/2
12	11/8 to 11/12	Host Defenses 17: Innate Nonspecific & 18: Adaptive Specific	Homework 10: Ch 16 <b>Case Study 3</b>	Tues. 11/9 <b>Fri. 11/12</b>
13	11/15 to 11/19	Review 3 (Ch. 15, 16, 17&18)	Homework 11: Ch 17&18	Tues. 11/16
14	11/22 to 11/26	<b>Exam 3 (Ch. 15, 16, 17&amp;18)</b> 6: Acellular Pathogens	Review 3 Exam 3 <b>Reflection 3</b>	Tues. 11/23 Wed. 11/ 24 <b>Mon. 11/29</b>
15	11/29 to 12/3	Review 4 (Semester Final Review)	Homework 12: Ch 6 Review 4	Tues. 11/30 Tues. 12/7
<b>Final</b>	<b>12/13 to 12/17</b>	<b>Cumulative Final Exam Due</b>	<b>Remote Final Exam</b>	<b>12/15</b>

# Laboratory Portion

**Meeting time:** Wed. 10:30am-1:15pm VAHS Rm. 110

**Lab Manual:** Microbiology: Laboratory Theory and Application, Brief, Third Edition, Michael J. Leboffe & B.E. Pierce, 2016. Morton Publishing. SBN-10: 1-61731-477-3 or ISBN-13: 978-1-61731-477-3

**Lab coat or lab apron is required.**



## LAB POLICIES



**1.) Attendance is Required. These are practical, hands-on activities and cannot be made up.** Students may be dropped from the class after 3 absences. Attendance will be taken via a daily sign-in sheet. Excessive tardiness (greater than 10 minutes) will be counted as an absence.

**2.)** No food, drink or chewing gum is allowed in the lab.

**3.)** You must wear a **lab coat or apron** during lab.

**4.)** Wash your hands before leaving the lab for the day.

**5.)** You must tie your hair back.

**6.)** Treat all lab equipment carefully and with respect.



## LAB GRADE CRITERIA

**Lab Reports:** For each separate lab, a lab report will be assigned. Seven total lab reports will be assigned, with each report worth 15 points.

**Quizzes:** Six quizzes will be given over the semester. These will be given at the beginning of class and cover the previous lab as well as the lab activity that day. Each quiz will be worth five points with the lowest quiz score dropped. Missed quizzes cannot be made up due to the practical nature of these, they can only be set up once.

**Exams:** Two exams will be given in lab. A midterm exam and the final cumulative exam. Each exam will be worth 35 points and contain a combination of hands-on practical questions and BIOL 2305: Microbiology for Health Science Majors 5 theoretical questions.

Lab Activities	Points per assignment:	Total Points:	Percentage of overall Biol 2305 grade (out of 1000pts):
Lab Reports (7)	15 pts each	105pts	~10.5%
Quizzes (5 of 6)	5 pts each	25pts	~2.5%
Midterm Exam (1)	35 pts	35 pts	~3.5%
Final Exam (1)	35 pts	35 pts	~3.5%
Unknown Lab Report (1)	35 pts	35 pts	~3.5%
Attendance and Participation (15)	1 pt each	15pts	~1.5%
<b>TOTAL</b>		250 pts	25 %

## LAB COURSE SCHEDULE

Week	Wed. 501 10:30am- 1:15pm	Lab Activity	Assignments
1	Aug. 25	Lab 1: Lab Safety & Aseptic technique Read pg. 1-8 and initial pg 13. <b>Exercises 1-1 &amp; 1-2</b>	
2	Sept. 1	Lab 2: Microbial Growth <b>Exercises 1-4, 1-5, 2-1, 2-2, and 2-8</b>	<b>Lab Quiz 1</b>
3	Sept. 8	Lab 3: Microscopy and Simple Staining <b>Exercises 3-4</b>	<b>Lab Quiz 2</b>
4	Sept. 15	Lab 3: Gram Staining <b>Exercises 3-6</b>	
5	Sept. 22	Lab 4: Body Surfaces & Acid-fast Stain <b>Review Commercial Slides &amp; Exercise 3-7</b>	<b>Lab Quiz 3</b>
6	Sept. 29	Lab 4: Selective Media <b>Exercises 4-2, 4-3, 4-4</b>	
7	Oct. 6	Lab Exam Review, completion of Lab Reports 1-4 <b>Collection of all Data</b>	<b>Completion of Lab Reports 1-4 due to UNM Learn @ 11:59pm.</b>
8	Oct. 13	<b>Lab Midterm Practical Exam</b>	
9	Oct. 20	Lab Exercise 5: Differential Tests Differential Tests-catalase, starch hydrolysis, Bile esculin Hydrolysis, DNase Test <b>Exercises 5-4, 5-10, 5-11, 5-16</b>	<b>Lab Quiz 4</b>
10	Oct. 27	Lab Exercise 6: Differential Tests-PRB, Decarboxylation Test, Phenylalanine Test, Urea Hydrolysis, SIM. <b>Exercises 5-2, 5-8, 5-9, 5-15, 5-18</b>	<b>Lab Quiz 5</b>
11	Nov. 3	Lab Exercise 7: Urine Culture <b>Exercise 6-3</b>	<b>Lab Quiz 6</b>
12	Nov. 10	Unknown Toothbrush Report	
13	Nov. 17	Unknown Toothbrush Lab Report Continue	
14	Nov. 24	Complete Lab Reports 5-7 & Review for Final	<b>Completion of Lab Reports 5-7 due to UNM Learn @ 11:59pm.</b>
15	Dec. 1	<b>Lab Cumulative Final Exam Unknown Lab Report Due</b>	<b>Unknown Lab Report due to UNM Learn @ 11:59pm.</b>