BIOL-2420-221CL
Microbiology Non-Science
Spring 2022 01/18/2022-05/18/2022

Lecture Tuesday 06:00PM - 08:50PM, Steam Bldg. #22, Room 342
Lab Thursday 06:00PM - 08:50PM, Steam Bldg. #22, Room 321

Instructor Information: James Mubiru, jmubiru@com.edu, phone number 409-9338245

Student hours and location: Tuesday and Thursday 9:00AM-12:00PM, Steam building, room S.325-20

Required Textbook/Materials:
Tortora, G.J., Funke, B.R. & Case, C.L., 2016. Microbiology: An Introduction, 13th edition, Boston, MA; Pearson Education, Inc. Publisher. ISBN-13: 9780134605180. This book is purchased at the time of registration as an e-book that you will gain access to once you are in Blackboard**.**
Mastering Microbiology: On-line component for the course. This is purchased at the time of registration.
***Lab Manual*:** Alderson, G.D., 2015. Microbiology Experiments & Lab Techniques, 14th edition. Southlake, TX; Fountainhead Press Publisher. ISBN-13: 9781598718782
***LAB COAT*-** made of polyester, cotton, or blend (No disposable plastic coats)
Safety-glasses are recommended purchase if you do not want to use common ones
Sharpie and Coloring pencils to be used in the lab. **Calculator with log function**
Scantrons
Six 888E scantrons
Course Description:
This course covers basic microbiology and immunology and is primarily directed at pre-nursing, pre-allied health, and non-science majors. It provides an introduction to historical concepts of the nature of microorganisms, microbial diversity, the importance of microorganisms and acellular agents in the biosphere, and their roles in human and animal diseases. Major topics include bacterial structure as well as growth, physiology, genetics, and biochemistry of microorganisms. Emphasis is on medical microbiology, infectious diseases, and public health this course covers basics of culture and identification of bacteria and microbial ecology.

Course requirements: (including description of any special projects or assignments)
First Exam, Midterm Exam & Final Exam
These exams will be taken face-to face and will consist of multiple-choice, fill-in-the-blank, matching, true-false, essay and identification.

1. The first exam will be taken in week 4 and will cover chapters 1, 3, 4, 5, 27 and 28.
2. The mid-term exam will be taken in Week 8 and will cover the next set of chapters (6, 7, 8, 9, 10,12, and 13).

3. The Final exam is not cumulative and will only cover the last part of the course.

Lecture Quizzes

You will have eight on-line quizzes that are found in Blackboard under the Quiz tab. Each quiz consists of 20 questions and you will have 30 minutes to answer these questions. These tests open on Thursday each week during the session and close the following Sunday. If you experience technical difficulty, please contact me. If I can verify the technical difficulty on my end, I can reset exams if the due date has not passed. I advise you to try and take the quiz earlier in the week vs. the last hour on Sunday!

Mastering Homework Assignments

With the required Mastering Component, you will need to complete ten (10) Mastering Homework Assignments during the course. Please check the schedule for the due dates.

In-class activities (50 points)

You will have in-class activities to cover material that reinforces the course material or is of clinical importance. The activities below will be done in class:

1. Cell wall craft (8 points)
2. Aerobic respiration craft (8 points)
3. Antibody craft (8 points)
4. Virus craft model (8 points)
5. "In the news" disease classroom discussion (8 points)
6. Article summary (10 points)

Pre-lab Quizzes (11 quizzes, 60 points)

I will expect for you to be preparing for the upcoming labs outside of class according to the schedule. Please refer to Blackboard for folders containing material to help you with your preparation of upcoming labs according to the schedule. To make sure you understand the BACKGROUND material and the PROCEDURES in the upcoming lab, you will need to take an on-line quiz to demonstrate that you are ready to enter the lab. If you score below 70%, then I will allow you to enter the lab if you have written by hand the procedures that will be covered in that laboratory exercise. Failure to come to class with a hand-written procedure means you will not be able to perform the lab and therefore forfeit the points associated with the laboratory exercises. If you score 70% or above, you do not need to write out the procedure and use your lab manual accordingly. This is a similar policy to how the laboratory exercises are conducted in nursing school. It is my hope that this will help prepare you for this type of laboratory training that most of you will need to have.

Lab Assignments (11 lab reports total 100 points)

For each laboratory experiment, there are questions that are associated with carrying out the procedures and analyzing the results. You will be responsible for turning in these questions at the end of every exercise.

1. **If a student does not follow proper laboratory safety protocol during the completion of the experiment, or does not clean the microscope, he/she will be penalized 2 points on the laboratory assignment.**
2. **Lab exercises sent through e-mail will not be accepted.**

Lab Practicals

There will be 2 laboratory practicals which will consist of a Power Point presentation and a written section.

Unknown Project

Students will be expected to use their knowledge and experience in the lab to determine the identification of two unknown bacteria samples. The rubric for this project is as below.

1	Completion of the dichotomous key	10 points
2	Completion of bacteria characteristic chart	10 points
3	Determination of bacteria shape	5 points
4	Determination of Gram stain results	5 points
5	Correctly carrying out selective media	5 points
6	Correct identification of bacteria species (two names)	5 points

Bonus Points (Extra points)

There will be opportunities for you to earn bonus points. Bonus points are not part of the course requirements so any bonus points earned will help your grade and any bonus points lost will not affect your grade negatively. **In order to earn bonus points, attendance is mandatory!**

The extra credit opportunities are as below:

Vaccine hesitancy extra points (10 points added on the midterm)

This research project covers vaccine hesitancy. There are some people who do not accept vaccines for themselves or their family members. Student will write a one-page single line assay on vaccine hesitancy clearly giving reasons people give for refusing vaccines. The assay should have a summary paragraph that states your view on vaccine hesitancy.

COVID-19 vaccine extra points (10 points added on the final)

This research project covers COVID-19 vaccines. Students write a two-page single spaced paper summarizing the currently available COVID-19 vaccines. Students will pretend they are in charge of a country other than America and they are responsible for choosing a suitable vaccine for that country.

Sickle cell club activities extra points (Must be actively involved in club activities)

These points will be awarded to students who do activities related to sickle cell disease. Currently we do not know what activities will be available.

Determination of Course Grade/Detailed Grading Formula: (methods of evaluation to be employed to include a variety of means to evaluate student performance)

Course Assessment	**Total Points**	**Percentage of Course**
LECTURE PORTION	**650**	**65.0%**
Lecture Quizzes (8)	160	16.0%
Pearson Homework (10)	140	14.0%
In-class activities (5 activities)	50	5.0%
First Exam	50	5.0%
Mid-term Exam	120	12%
Final Exam	130	13%
LABORATORY PORTION	**350**	**35.0%**
Pre-Lab Quizzes (11)	60	6.0%
Lab Assignments (11)	100	10.0%
Unknown Bacteria Project	40	4.0%.
Lab Practical # 1	75	7.5%
Lab Practical # 2	75	7.5%
TOTAL POINTS	**1000**	**100%**

Grading Scale

A A Sum of the points earned for course assessments that equals between 900 and 1000 points
B A Sum of the points earned for course assessments that equals between 800 and 899 points
C A Sum of the points earned for course assessments that equals between 700 and 799 points
D A Sum of the points earned for course assessments that equals between 600 and 699 points
F A Sum of the points earned for course assessments that equals below 600 points.
I An incomplete may be assigned at the discretion of the instructor in accordance with college policy.
W A withdrawal may be assigned in accordance with college policy.

Lab Science Policy

This course consists of both a lecture and laboratory grade component. Students must earn a 70% or better in the laboratory component to successfully pass the course. Earning less than 70% in the laboratory component will result in an F for the course regardless of the lecture grade. Passing the laboratory component and failing the lecture component will not guarantee a passing grade for the course. Deviations from this policy will be at the sole discretion of the instructor.

Late Work, Make-Up, and Extra-Credit Policy:

1. For online tests/exams, if you experience technical difficulty, please contact me. If I can verify the technical difficulty on my end, I can reset exams if the due date has not passed.
2. I do not reset exams for students who just want to improve their grades.
3. Issues with a particular grade should be brought to in my attention as soon as possible. **After two weeks have passed since the due date, I will not change the grade or reset the test**.
4. If a student has a sickness or a family emergency, I will reset the exam/test after the student brings suitable documentation. However, if two weeks have passed, I will not accept the documentation.

Attendance Policy:

1. Being called in at work is not a valid excuse in this course.
2. A student is required to come to lab to complete the face-to-face laboratory exercises required in the laboratory component of this course. **Absences in three required lab meetings will result in a "F" for the course grade unless there is a documented excuse approved by the instructor (e.g. illness or death in the family). If you miss more than 3 labs even if you have a documented excuse, you will get and "F" for the course**
3. A student can only miss one lab.
4. Attendance is taken every class meeting and verified at the end of class. Do not leave class early!
5. If a student accumulates 3 absences, I MUST submit his/her name to the Early Alert System and extra credit will not be added to the student's grade.

Communicating with your instructor: ALL electronic communication with the instructor must be through your COM email. Due to FERPA restrictions, faculty cannot share any information about performance in the class through other electronic means. (Faculty may add additional statement requiring monitoring and communication expectations via Blackboard or other LMS)

Student Learner Outcome	Maps to Core Objective	Assessed via this Assignment
SLO 10		Exercise 3 (Intro to microscopes)
SLO 11		Exercise 5 (advanced microscopy)
SLO 12		Exercise 6 (Transfer technique)

Academic Dishonesty:
The practice of taking someone else's work or ideas and passing them off as one's own. Plagiarism is a very serious offense. Plagiarism includes paraphrasing someone else's words without giving proper citation, copying directly from a website and pasting it into your paper, using someone else's words without quotation marks. Any assignment containing any plagiarized material will receive a grade of zero and the student will be referred to the Office of Student Conduct for the appropriate discipline action. In addition, I am providing you with an internet link to a video on Plagiarism. I would strongly urge you to look this over early in the course.
https://video.search.yahoo.com/search/video;_ylt=Awr9CJ2Y5apgKlAA2WJXNyoA;_ylu=Y29sbwNncTEEcG9zAzEEdnRpZAMEc2VjA3BpdnM-?p=Plagiarism&fr2=piv-web&fr=yfp-t-s#id=1&vid=7cd373337514bc2e27ced094c7fc08e6&action=view

Student Concerns: If you have any questions or concerns about any aspect of this course, please contact me using the contact information previously provided. If, after discussing your concern with me, you continue to have questions, please contact Sheena Abernathy, Chair of the Science Department, at 409-933-8330 or by email: sabernathy@com.edu

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Institutional Policies and Guidelines

Grade Appeal Process: Concerns about the accuracy of grades should first be discussed with the instructor. A request for a change of grade is a formal request and must be made within six months of the grade assignment. Directions for filing an appeal can be found in the student handbook.<https://build.com.edu/uploads/sitecontent/files/student-services/Student_Handbook_2019-2020v5.pdf. *An appeal will not be considered because of general dissatisfaction with a grade, penalty, or outcome of a course. Disagreement with the instructor's professional judgment of the quality of the student's work and performance is also not an admissible basis for a grade appeal.* https://build.com.edu/uploads/sitecontent/files/student-services/Student_Handbook_2019-2020v5.pdf

Academic Success & Support Services: College of the Mainland is committed to providing students the necessary support and tools for success in their college careers. Support is offered through our Tutoring Services, Library, Counseling, and through Student Services. Please discuss any concerns with your faculty or an advisor.

ADA Statement: Any student with a documented disability needing academic accommodations is requested to contact Holly Bankston at 409-933-8520 or hbankston@com.edu. The Office of Services for Students with Disabilities is located in the Student Success Center.

Counseling Statement: Any student needing counseling services is requested to please contact Holly Bankston in the student success center at 409-933-8520 or hbankston@com.edu. Counseling services are available on campus in the student center for free and students can also email

counseling@com.edu to set up their appointment. Appointments are strongly encouraged; however, some concerns may be addressed on a walk-in basis.

Textbook Purchasing Statement: A student attending College of the Mainland is not under any obligation to purchase a textbook from the college-affiliated bookstore. The same textbook may also be available from an independent retailer, including an online retailer.

Withdrawal Policy: Students may withdraw from this course for any reason prior to the last eligible day for a "W" grade. Before withdrawing students should speak with the instructor and consult an advisor. Students are permitted to withdraw only six times during their college career by state law. The last date to withdraw from the 1st 8-week session is March 2. The last date to withdraw from the 16-week session is April 25. The last date to withdraw for the 2nd 8-week session is May 4.

F_N Grading: The F_N grade is issued in cases of *failure due to a lack of attendance*, as determined by the instructor. The F_N grade may be issued for cases in which the student ceases or fails to attend class, submit assignments, or participate in required capacities, and for which the student has failed to withdraw. The issuing of the F_N grade is at the discretion of the instructor. The last date of attendance should be documented for submission of an F_N grade.

Early Alert Program: The Student Success Center at College of the Mainland has implemented an Early Alert Program because student success and retention are very important to us. I have been asked to refer students to the program throughout the semester if they are having difficulty completing assignments or have poor attendance. If you are referred to the Early Alert Program you will be contacted by someone in the Student Success Center who will schedule a meeting with you to see what assistance they can offer in order for you to meet your academic goals.

COVID-19 Statement: All students, faculty, and staff are expected to familiarize themselves with materials and information contained on the College of the Mainland's Coronavirus Information site at www.com.edu/coronavirus. In compliance with Governor Abbott's May 18 Executive Order, face coverings/masks will no longer be required on COM campus. Protocols and college signage are being updated. We will no longer enforce any COM protocol that requires face coverings. We continue to encourage all members of the COM community to distance when possible, use hygiene measures, and get vaccinated to protect against COVID-19. Please visit com.edu/coronavirus for future updates.

Course outline

Wk	Date	Daily Schedule	Assigned Reading	Topic
W1	Tues 1/18	Introduction and The Microbial World & You Observing Microorganisms Functional Anatomy of Prokaryotic & Eukaryotic Cells	• Chapter 1 • Chapter 3 • Chapter 4	
	Thurs 1/20	LABORATORY SCHEDULE Make sure you complete your pre-lab quiz on 1/20.	• Exercise 3 • Exercise 5	Lab Safety Introduction to Microscope Advanced Microscopy (Lab Assignment 1 DUE upon completion of labs above)
W2	Tues 1/26	Introduction and The Microbial World & You Observing Microorganisms Functional Anatomy of Prokaryotic & Eukaryotic Cells	1. Chapter 1 2. Chapter 3 3. Chapter 4	
	Thurs 1/27	LABORATORY SCHEDULE Make sure you complete your pre-lab quiz on 1/27. LAB COATS REQUIRED	• Exercise 1 • Exercise 6 • Exercise 18	Contamination Lab Transfer Technique Medical Asepsis (Lab Assignment 2 DUE upon completion of labs above)
	Sun 1/30	**LECTURE QUIZ 1 in BLACKBOARD DUE! (CHAPTERS 1,3,4)** **ASSIGNMENT 1 in MASTERING DUE**		
W3	Tues 2/1	Microbial Metabolism Environmental Microbiology Applied & Industrial Microbiology	• Chapter 5 • Chapter 27 • Chapter 28	
	Thurs 2/3	LABORATORY SCHEDULE Make sure you complete your pre-lab quiz on 2/3.	• Exercise 7 • Exercise 8	Streak Plate Technique Counting Microbial Populations (Lab Assignment 3 DUE upon completion of labs above)
	Sun 2/6	**LECTURE QUIZ 2 in BLACKBOARD DUE! (CHAPTERS 5,27,28)** **ASSIGNMENT 2 in MASTERING DUE**		
W4	Tues 2/8	Microbial Growth Control of Microbial Growth	• Chapter 6 • Chapter 7	
	FIRST EXAM (COVERS CHAPTERS 1, 3, 4, 5, 27, 28)			
	Thurs 2/10	LABORATORY SCHEDULE Make sure you complete your pre-lab quiz on 2/10.	• Exercise 9	Simple stain (Lab Assignment 4 DUE upon completion of labs above)
	Sun 2/13	**ASSIGNMENT 3 in MASTERING DUE**		
W5	Tues 2/15	Microbial Genetics Biotechnology & DNA Tech.	• Chapter 8 • Chapter 9	In-class Activity
	Thurs 2/17	LABORATORY SCHEDULE Make sure you complete your pre-lab quiz on 2/17.	• Exercise 10 • Exercise 11	Gram Stain Capsule Stain (Lab Assignment 6 DUE upon completion of labs above)
	Sun 2/20	**LECTURE QUIZ 3 in BLACKBOARD DUE! (CHAPTERS 6,7,8)** **ASSIGNMENT 4 in MASTERING DUE**		
W6	Tues 2/22	Classify Microorganisms The Eukaryotes	• Chapter 10 • Chapter 12	
	Thurs 2/24	LABORATORY SCHEDULE Make sure you complete your pre-lab quiz on 2/24.	• Exercise 19 • Exercise 20	• Control of Microorganism Moist and Dry

			• Exercise 21 • Exercise 22	• Control of Microorganisms Ultraviolet Light • Control of Microorganisms Disinfectants • Control of Microorganisms Antibiotics (Lab Assignment 5 DUE upon completion of labs above)
W7	Tues 3/1	Viruses, Viroids, & Prions	• Chapter 13	
	Thurs 3/3	LABORATORY SCHEDULE Make sure you complete your pre-lab quiz on 3/3.	• Exercise 12 • Exercise 13	• Spore Stain • Acid Fast Stain
	Sun 3/6	**LECTURE QUIZ 4 in BLACKBOARD DUE! (CHAPTERS 10,12,13)** **ASSIGNMENT 5 in MASTERING DUE**		
W8	Tues 3/8	**MIDTERM EXAM**		
	Thurs 3/10	**LAB PRACTICAL 1**		
W9	Tues 3/22	Principles-Disease & Epidemiology Microbial Mechanisms of Pathogenicity	• Chapter 14 • Chapter 15	
	Thurs 3/24	LABORATORY SCHEDULE Make sure you complete your pre-lab quiz on 3/24.	• Exercise 14 • Exercise 33	Bacterial Conjugation Epidemiology (Lab Assignment 7 DUE upon completion of labs above)
	Sun 3/27	**LECTURE QUIZ 5 in BLACKBOARD DUE! (CHAPTERS 14,15)**		
W10	Tue 3/29	Innate Immunity	• Chapter 16	
	Thurs 3/31	LABORATORY SCHEDULE Make sure you complete your pre-lab quiz on 3/31.	• Exercise 31	Parasitology
	Sun 4/3	**ASSIGNMENT 6 in MASTERING DUE**		
W11	Tues 4/5	Adaptive Immunity	• Chapter 17	
	Thurs 4/7	LABORATORY SCHEDULE Make sure you complete your pre-lab quiz on 4/7.	• Exercise 27 • Exercise 29	Pathogenic Cocci Cultures of Anaerobic Bacteria
	Sun 4/10	**LECTURE QUIZ 6 in BLACKBOARD DUE! (CHAPTERS 16,17,18)** **ASSIGNMENT 7 in MASTERING DUE**		
W12	Tues 4/12	Practical Application of Immunology Disorders of Immune System	• Chapter 18 • Chapter 19	
	Thurs 4/14	LABORATORY SCHEDULE	• Exercise 30	Enteric bacteria
W13	Tues 4/19	Antimicrobial Drugs	• Chapter 20	
	Thurs 4/21	LABORATORY SCHEDULE **Receive Unknown**	• Exercise 35 (modified)	**Dichotomous Key Due** **Characteristic Table Due** **Gram-strain** **Culture the samples on plate**
	Sun 4/24	**ASSIGNMENT 8 in MASTERING DUE**		

W14	Tues 4/26	Microbial Diseases of the Skin and Eyes Microbial Diseases of the Nervous System	• Chapter 21 Chapter 22	In-class Activity
	Thurs 4/28	Microbial Diseases of the Cardiovascular and Lymphatic System	Chapter 23	Evaluate Biochemical Tests Identify unknown
	Sun 5/1	**LECTURE QUIZ 7 in BLACKBOARD DUE! (CHAPTERS 19,21,22) ASSIGNMENT 9 in MASTERING is DUE**		
W15	Tues 5/3	Microbial Diseases of the Respiratory System	•Chapter 24	
	Thurs 5/5	Microbial Diseases of the Digestive System Microbial Diseases - Urinary and Reproductive System	• Chapter 25 • Chapter 26	
	5/5	**LAB PRACTICAL 2**		
	Sun 5/8	**LECTURE QUIZ 8 in BLACKBOARD DUE! (CHAPTERS 23,24,25,26) ASSIGNMENT 10 in MASTERING is DUE**		
W16	Tues 5/10	**FINAL EXAM**		
	Thurs 5/12			