



BIOL2420.104CL
Microbiology Non-Science
Spring 2021

Lecture will take place in MS-142 on Tuesday and Thursday from 8:00 am – 9:20 am
Lab will take place in MS-121 on Fridays from 8 am until 10:50 am according to schedule

Instructor Information: Jennifer Bieszke, jbieszke@com.edu (preferred) 409-933-8332

Student hours and location:

Monday from 11:00 am until 12:30 am in MS143

Tuesday and Thursday from (9:30am – 11:00am) in either MS-142 or Atrium in Building #9

I will also be available for immediate response via email from 11:00 am until 12:00 pm on Tuesday
Wednesday and Thursdays. Any other form of email will receive a response within 24 hours.

Required Textbook/Materials:

Textbook: 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 -check Walmart

DISPOSABLE FACE MASKS – You will need to purchase 4 disposable masks and bring one each time you come to campus to complete the labs, you will then change into your personal mask when leaving the lab or once outside the building.

Sharpie to be used in the lab

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.

PREREQUISITES: Two lab based courses (eight credit hours) selected from biology or chemistry core curriculum courses, grade “C” or better.

Course requirements:

Midterm Exam & Final Exam

Both these exams will have an in-class part and on-line part. The exams will be timed and the format for these exams will be discussed at a later date. The Mid-term Exam will cover the lecture material from the first half of the class and the Final Exam will cover the material from the second half of the class only. Please make sure you are aware of the dates these tests must be completed in the Schedule below. **NO MAKE-UP POLICY for missed exams unless there is documented extenuating circumstances such as illness or death in family.**

Study Guide Quizzes

You will have 10 on-line quizzes that will cover the study guides for each chapter(s). These quizzes will be in Blackboard, and you will have two attempts for each quiz. The idea of the quiz is to help you see which areas in the Study guide are your weakest and the second attempt is to help you master this material. Please make sure you are aware of the dates these tests must be completed in the Schedule below. **NO MAKE-UP POLICY for missed quizzes unless there is documented extenuating circumstances such as illness or death in family.**

Mastering Homework Assignments

With the required Mastering Component, you will need to complete eight Mastering Homework Assignments during the course. Please check the schedule for the due dates. **NO MAKE-UP POLICY for missed mastering homework assignments unless there is documented extenuating circumstances such as illness or death in family.**

Multiple Posts in Discussion Forums

You will have three discussion forums where you are going to have to make an initial post to the discussion forum. This post will have specific criteria that you must meet when making your post. You will also have to make a second post to another student’s post to extend the discussion further in a positive manner. It is important to recognize if wrong information is being posted by another person but please be respectful of others when notifying a person of mis-informing information. **NO MAKE-UP POLICY for Discussion Posts unless there is documented extenuating circumstances such as illness or death in family.**

Course Project

At the end of the semester, you may be assigned into small groups in order to delegate the work needed in order to study the infectious diseases that invade the different organ systems in the body. You will have to identify the pathogen for different diseases, recognize characteristic signs & symptoms, discuss treatment, and use this information in working through a case study. More information to come! There will be multiple parts to this assignment and the grade will be determined by individual and group performance. **NO MAKE-UP POLICY for Group Project unless there is documented extenuating circumstances such as illness or death in family.**

Pre-lab Quizzes

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 70% or above, you do not need to write out the procedure and use your lab manual accordingly. **If you score below 70%, or complete the Pre-lab exam 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.

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.

FTF Lab Assignments

For each laboratory experiment, there are questions that are associated with carrying out the procedures and analyzing the results. You will be responsible for transcribing your results and answering questions into a Word Document from your Lab Manual and submitting this document on-line through Safe Assignment. **MAKE-UP POLICY: If you are absent, I will still accept the discussion questions if turned in on the due date but you will not receive credit for the results.** In addition, if this experiment is turned in late, you will be penalized 11% of the score. In both cases, these assignments will not be accepted after 1 week past the due date.

If you or any class member does not follow proper laboratory safety protocol during the completion of an experiment, and it is observed by me then everyone will be penalized 1 point on the laboratory assignment.

In addition, Exercise 6 must be completed in order to participate in any other laboratory exercise that follows.

DRY Lab and UNKNOWN Assignments

These assignments will cover lab topics but outside of class. Some of these dry-labs will be part of Mastering and some of these assignments will require other on-line sources or pdf articles provided. All assignments will be submitted on-line using Safe Assignment. **NO MAKE-UP POLICY for missed assignments unless there is documented extenuating circumstances such as illness or death in family.**

Lab Practicals

There will be two practicals in this course. Both these exams will be in-class. The exams will be timed and will consist of the following format. You will have some identification and most of the questions will be short-answer. Please make sure you aware of the dates these tests must be completed in the Schedule below. **NO MAKE-UP POLICY for missed exams unless there is documented extenuating circumstances such as illness or death in family.**

Determination of Course Grade/Detailed Grading Formula:

| Course Assessment | Total Points | Percentage of Course |
|---------------------------|---------------------|-----------------------------|
| LECTURE PORTION | 650 | 65.0% |
| Study Guide Quizzes (10) | 100 | 10.0% |
| Discussion Forums (3) | 30 | 3.0% |
| On-line Assignments (8) | 80 | 8.0% |
| Course Project | 120 | 12.0% |
| Mid-term Exam | 160 | 16.0% |
| Final Exam | 160 | 16.0% |
| LABORATORY PORTION | 350 | 35.0% |
| Pre-Lab Quizzes (6) | 60 | 6.0% |
| FTF Lab Assignments (6) | 60 | 6.0% |
| DRY Lab Assignments (6) | 60 | 6.0% |
| Unknown Assignment | 20 | 2.0% |
| 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:

Please refer to the Course Requirements for specific make-up policies for each course requirement. The Make-up policy is indicated in **BOLD** font.

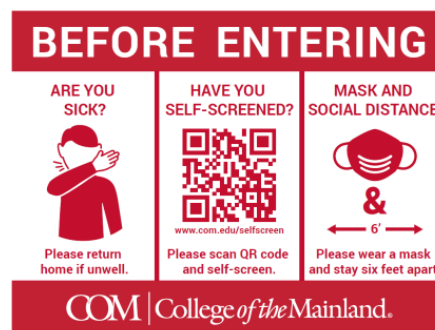
Extra credit that may be offered will be associated with a course requirement. No extra-credit will be given for additional work not associated with a course requirement.

Attendance Policy:

Your attendance is critical to the success you will have in this course. Attendance will be taken every class meeting and verified at the end of class. Do not leave class early!

Attendance and participation in the laboratory portion of this class is mandatory and critical to the understanding of the course material. All students must attend 5 out of the 6 FTF laboratory meetings. Failure to complete 80% of the face-to-face lab meetings will result in a failing laboratory grade and an “F” grade for the course. Documented excused absences (i.e. death in the family or a documented illness) will be handled on a case by case bases and at the discretion of the instructor.

STAY HOME IF YOU FEEL SICK– As stated in the [COM Spring 2021 Covid19 Guide](#), If you are feeling sick in any way, you need to stay home. Contact your instructor to address your absence and do not come on campus while you are ill. Failure to comply with this will result in you being asked to leave campus and can be considered disciplinary matter.



TARDY POLICY: Tardiness may result in an absence if not present when attendance is taken and may prevent you from participation in lab experiments or examinations.

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 | Assessed via this Assignment |
|--|-------------------------------------|
| 1. Describe distinctive characteristics and diverse growth requirements of prokaryotic organisms compared to eukaryotic organisms. | Mastering Assignment 1 |
| 2. Provide examples of the impact of microorganisms on agriculture, environment, ecosystem, energy, and human health, including biofilms. | Mastering Assignment 2 |
| 3. Distinguish between mechanisms of physical and chemical agents to control microbial populations. | Dry Lab Assignment 1 |
| 4. Explain the unique characteristics of bacterial metabolism and bacterial genetics. | Mastering Assignment 4 |
| 5. Describe evidence for the evolution of cells, organelles, and major metabolic pathways from early prokaryotes and how phylogenetic trees reflect evolutionary relationships. | Mastering Assignment 5 |
| 6. Compare characteristics and replication of acellular infectious agents (viruses and prions) with characteristics and reproduction of cellular infectious agents (prokaryotes and eukaryotes). | Mastering Assignment 6 |
| 7. Describe functions of host defenses and the immune system in combating infectious diseases and explain how immunizations protect against specific diseases. | Group Project |
| 8. Explain transmission and virulence mechanisms of cellular and acellular infectious agents. | Lecture Quiz 3 |
| 9. Use and comply with laboratory safety rules, procedures, and universal precautions. | Laboratory Safety Quiz |
| 10. Demonstrate proficient use of a compound light microscope. | FTF-lab assignment 1- Exercise 3 |
| 11. Describe and prepare widely used stains and wet mounts, and discuss their significance in identification of microorganisms. | FTF-lab assignment 1- Exercise 5 |
| 12. Perform basic microbiology procedures using aseptic techniques for transfer, isolation and observation of commonly encountered, clinically significant bacteria. | FTF-lab assignment 2 |
| 13. Use different types of bacterial culture media to grow, isolate, and identify microorganisms. | FTF-lab assignment 6 |
| 14. Perform basic bacterial identification procedures using biochemical tests. | FTF-lab assignment 6 |
| 15. Estimate the number of microorganisms in a sample using methods such as direct counts, viable plate counts, or spectrophotometric measurements. | Dry Lab 2 |
| 16. Demonstrate basic identification protocols based on microscopic morphology of some common fungi and parasites. | Dry Lab 6 |

Academic Dishonesty:

Disciplinary actions will be taken for students who exhibit disorderly conduct, cheat on exams, submit plagiarized work (see below), or are involved in collusion (helping others cheat or plagiarize) as defined in the Student Handbook under the heading, “Discipline and Penalties.” The maximum penalty imposed for violations will be an F in the course. The student will also be referred to the Associate Vice President of Student Success and Conduct for further disciplinary action. Please read through the “Standards of Student Conduct” in the Student Handbook for a more complete discussion of these issues and your rights and responsibilities.

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 Sheena Abernathy, Chair of the Science Department, at 409-933-8330 or by email: sabernathy@com.edu.

Course outline (Tentative Schedule) – FTF labs are shaded!

| Week(s) | Lecture Material | LABS |
|-------------------------------------|--|---|
| <u>Week 1</u> 1/19 to 1/24 | CH 1 The Microbial World and You CH 3 Observing Microorganisms under the Microscope DISCUSSION BOARD FORUM 1 DUE 1/24/21 | Control of Microorganism growth (Heat, UV, Disinfectants, Antibiotics) Dry Lab Assignment 1 DUE 1/22/21 |
| <u>Week 2</u> 1/25 to 1/31 | CH 4 Functional Anatomy STUDY GUIDE QUIZ 1 in BLACKBOARD DUE 1/27/21 ASSIGNMENT 1 in MASTERING DUE 1/31/21 | Pre-lab Quiz 1 DUE 1/28/21 Lab Safety Exercises 3 (Intro to Microscope) Exercise 5 (Protist lab) FTF Lab Assignment 1 DUE 1/29/21 |
| <u>Week 3</u> 2/01 to 2/07 | CH 5 Microbial Metabolism CH 27 Environmental Microbiology STUDY GUIDE QUIZ 2 in BLACKBOARD DUE 2/03/21 ASSIGNMENT 2 in MASTERING DUE 2/07/21 | Quantifying Bacteria with Serial Dilutions and Pour Plates Dry Lab Assignment 2 DUE 2/05/21 |
| <u>Week 4</u> 2/08 to 2/14 | CH6 Microbial Growth CH28 Applied & Industrial Microbiology STUDY GUIDE QUIZ 3 in BLACKBOARD DUE 2/10/21 DISCUSSION BOARD FORUM 2 DUE 2/14/21 | Pre-lab Quiz 2 DUE 2/11/21 Exercise 6 (Transfer Technique) Exercise 7 (Streak Plate Technique) FTF Lab Assignment 2 DUE 2/12/21 |
| <u>Week 5</u> 2/15 to 2/21 | CH8 Microbial Genetics STUDY GUIDE QUIZ 4 in BLACKBOARD DUE 2/17/21 ASSIGNMENT 3 in MASTERING DUE 2/21/21 | Aerotolerance Dry Lab Assignment 3 DUE 2/19/21 |
| <u>Week 6</u> 2/22 to 2/28 | CH 10 Classifying Microorganism CH 12 The Eukaryotes STUDY GUIDE QUIZ 5 in BLACKBOARD DUE 2/24/21 ASSIGNMENT 4 in MASTERING DUE 2/28/21 | Pre-lab Quiz 3 DUE 2/25/21 Examine plates from Ex. 6 and 7. Exercise 9 – (Simple Stain) FTF Lab Assignment 3 DUE 2/26/21 |
| <u>Week 7</u> 3/01 to 3/07 | CH 13 Viruses, Viroids, & Prions STUDY GUIDE QUIZ 6 in BLACKBOARD DUE 3/03/21 DISCUSSION BOARD FORUM 3 DUE 3/07/21 | Pre-lab Quiz 4 DUE 3/04/21 Exercise 10 – Grain Stain w/unknown Exercise 11 – Capsule Stain FTF Lab Assignment 4 DUE 3/05/21 |

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|-----------------------------------|---|--|
| <u>Week 8</u> 3/08 to 3/14 | REVIEW 3/09/21 IN-CLASS MIDTERM PART A IN-CLASS 3/11/21 MIDTERM PART B ON-LINE DUE 3/14/21 | Other Staining Methods Dry Lab Assignment 4 DUE 3/12/21 |
| <i>SPRING BREAK 3/15-3/21</i> | | |
| <u>Week 9</u> 3/22 to 3/28 | CH 14 Epidemiology CH 15 Microbial Pathogenicity STUDY GUIDE QUIZ 7 in BLACKBOARD DUE 3/24/21 ASSIGNMENT 5 in MASTERING DUE 3/28/21 | <u>Lab Practical 1 DUE 3/26/21</u> |
| <u>Week 10</u> 3/29 to 4/04 | CH 16 Innate Immunity STUDY GUIDE QUIZ 8 in BLACKBOARD DUE 3/31/01 ASSIGNMENT 6 in MASTERING DUE 4/04/21 | DRY Lab Assignment 5 DUE 4/02/21 <i>SPRING HOLIDAY 4/02/21</i> |
| <u>Week 11</u> 4/05 to 4/11 | CH 17 Adaptive Immunity STUDY GUIDE QUIZ 9 in BLACKBOARD DUE 4/07/21 ASSIGNMENT 7 in MASTERING DUE 4/11/21 | Pre-lab Quiz 5 DUE 4/08/21 <u>Exercise 14 Bacterial Conjugation &</u> <u>Exercise 33 Epidemiology</u> FTF Lab Assignment 5 DUE 4/09/21 |
| <u>Week 12</u> 4/12 to 4/18 | CH 18 Practical Application of Immunology CH 19 Disorders of Immune System STUDY GUIDE QUIZ 10 in BLACKBOARD DUE 4/14/21 ASSIGNMENT 8 in MASTERING DUE 4/18/21 | Examination of Parasites Dry Lab Assignment 6 DUE 4/23/21 |
| <u>Week 13</u> 4/19 to 4/25 | COURSE PROJECT OVERVIEW (CHAPTERS 21-26) 4/20 – ASSIGNMENT OF GROUPS AND REVIEW OF A&P 4/22 – REVIEW OF PATHOGENICITY OF MICROORGANISMS | Pre-lab Quiz 6 DUE 4/22/21 Exercise 27 – Pathogenic Cocci (DEMONSTRATION) Exercise 30 – Enteric Bacteria FTF Lab Assignment 6 DUE 4/23/21 |
| <u>Week 14</u> 4/26 to 5/02 | GROUP PROJECT WORK IN CLASS | <u>Unknown Lab On-line for entire class</u> <u>DUE 4/30/21</u> <u>Dichotomous Key On-line for entire class</u> <u>DUE 4/30/21</u> |
| <u>Week 15</u> 5/03 to 5/09 | COMPLETION OF GROUP PROJECT And REVIEW for UPCOMING EXAMS GROUP PROJECT DUE 5/09/21 | <u>Lab Practical 2 DUE 5/07/21</u> |
| <u>Week 16</u> 5/10 to 5/13 | FINAL EXAM PART A IN-CLASS 5/11/21 FINAL EXAM PART B ON-LINE 5/12/21 | |

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 is March 3rd for the 1st 8-week session, April 26 for the 16-week session, and May 5th for the 2nd 8-week session.

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. Students are required to watch a training [video](#), complete the [self-screening](#), and acknowledge the safety guidance at: www.com.edu/selfscreen. In addition, students, faculty, and staff must perform a [self-screening](#) prior to each campus visit. Finally, students, faculty, or staff who have had symptoms of COVID-19, received a positive test for COVID-19, or have had close contact with an individual infected with COVID-19 must complete the [self-report tool](#).