General Microbiology
BIOL 310/310L
Fall 2021
Course Syllabus
TR 10:50-12:05 RITA 154

Professor: Matthew E. Rhodes, Ph.D
Email: rhodesme@cofc.edu
Office Phone: (843) 953-8087
Office: 119 RITA
Office Hours (Via Zoom): W 1:30-3:00, R 9:00-10:00 and by appointment
I will do my best to respond to all e-mails within one business day.
Feel free to schedule virtual meetings outside of office hours.

Microbiology Lab (310L): RITA 167
Ms. Mouna DiBenedetto

Required Texts and Materials:
Lecture: Microbiology with Diseases by Taxonomy, 6th Edition
Robert W. Bauman
Copyright year: 2020
Pearson Publishing
Bound, binder, ebook

Web Component: Microbiology with Diseases by Taxonomy, 6th Edition
Pearson Publishing provides a smart learn ebook and access to Mastering Microbiology. Assignments posted through Mastering Microbiology will be mandatory
See attachment for details on how to get Mastering Microbiology

Teaching/Class Philosophy:
Let’s start by what this class is. This class is a general intro to microbiology. We will attempt to cover a broad variety of topics that fall under the realm of microbiology. However, seeing as it is impossible to cover all relevant topics we will be forced to pick and choose. We will spend comparatively little time on topics that should be covered in other classes (Ex- Eukaryotes) and more of our time on Bacteria and Archaea. We will be paying particular attention to differences between the three domains. Viruses fall somewhere in the middle, but given the current state of the world we may be spending more time on viruses than usual. We will spend one class period devoted entirely to SARS-CoV-2.
The textbook is not perfect. No textbook is perfect, but it is the best that I can find. We will be omitting chapters and sections of the textbook and in turn replacing them with supplemental readings (see below). These readings are intended to represent relatively recent and fascinating developments in microbiology. But what I find interesting and what you find interesting may be different. If there is a topic you want to explore and have a suggested reading, please pass it along. If I am not able to include it this semester, I may use it in the future. Some of the readings this year were passed along by previous students. And yes these readings will be
on the test. In a similar vein, if there are topics related to SARS-CoV-2 that you would like to be discussed, please pass them along as well.

Now a brief note on what this class is not. Some of you may be disappointed to hear that it is not a medical microbiology course. It is not an applied microbiology course. It is not an environmental microbiology course. We will not be focusing on any one aspect of microbiology. However, with the recent revelations on the importance of the human microbiome the distinctions between medical microbiology and environmental microbiology are starting to break down. To be a good doctor, nurse, dentist, etc. it is important to appreciate the human body and organs in their entirety. For too long in modern medicine, microbes have been treated solely as the enemy and we are only now realizing the disservice this might have done to our health.

**General Course Information:**
This course begins by examining the history of microbiology, the shapes, sizes, and structure of microorganisms so you become familiar with the world of microbiology. We will then look at microbial growth and how the growth of microbes can be controlled, followed by the means by which microbes obtain energy (physiology), and the flow of information within a microbial cell. Following this understanding of how the microbial cell functions, we will examine the viruses and how these interact with both microbial and animal cells. We end the semester with an introduction to the interactions between microbes and humans, the response of our immune system, and we will examine certain microorganisms and their role in disease.

**Student Learning Outcomes:** The goal of this course is to demonstrate how microbes have shaped the world and continue to shape the world. Starting all the way back at the origin of life we will investigate the impact that microbial life has had on the evolution of life eventually ending with the effects of microbial life on the human body. To better appreciate how this occurs we will need to understand microbial physiology, metabolisms, and genetics. Upon completion of this course the student should be able to:

1. Discuss the historical development of the field of microbiology.
2. Identify the components of the microbial world with special references to the bacteria.
3. Compare the sizes, shapes, and physical makeup of the bacteria, archaea and viruses.
4. Discuss different theories surrounding the origin of life.
5. Evaluate the role of microorganisms in disease and the prevention and treatment of infectious disease.
6. Describe the varied nutritional types of bacteria at the elementary level.
7. Clarify the fundamentals of the molecular genetics of bacteria.
8. Discuss the principles of molecular biology including DNA structure, DNA replication, transcription, and translation as they pertain to microorganisms.
9. Explain the regulation of gene expression including enzyme activity, induction, repression, DNA binding proteins, and attenuation.
10. Clarify the molecular basis of mutation, genetic recombination, transformation, transduction and conjugation.
11. Evaluate the role that microbes play in regulating human health.
12. Understand how microbes interact with their environments.
13. And others...

**Grade Composition:**

**Lecture (Total 75%):**
- Exams: (3x 100) 300pts or 50% (16.7% each)
- Final Exam 150 pts or 25%
- In-Class/At home Assignments 80pts or 13.3%
- Mastering Microbiology 40pts or 6.7%
Participation/Attendance 30pts or 5%

Lab (25%)

Exams
Three in-class (1.25-hour) exams will be given on scheduled dates. The exams will consist of a variety of fill-in-the-blank, drawings, or short answer questions, with minimal multiple choice questions. The exam material will primarily focus on the material covered since the preceding exam, but applicative questions of cumulative material may appear.

Make-up exams are purely at my discretion and are reserved for extreme circumstances only. Contact me as soon as possible if you think you will or if you have missed an exam. No make-ups will be administered after a 48-hour period. See other attendance policies.

If deemed necessary, this course will require the use of an exam proctoring service for the course exams. You are responsible for registering, scheduling, and the cost of the service prior to each exam. Instructions and additional information on proctoring can be found at this link: https://academicaffairs.cofc.edu/distance-education/online-proctoring/index.php.

Final Exam
A single final exam will be comprehensive and will count for 25% of the lecture grade. The final exam grade can NOT be dropped and makeups will be offered only under particularly extreme circumstances.

Mastering Microbiology Assignments
For each chapter of a Mastering Microbiology assignment will be posted. These must be completed online to the lecture during which that chapter will be discussed (Mastering Microbiology assignments will generally be due by 10am the day of class). This is to assure that you have read the material and are prepared for class. Personally, I wish this had been around when I was a student. Mastering Microbiology assignments will be graded for completion. You can miss 2 Mastering Microbiology assignments without penalty.

Supplemental Readings: A variety of supplemental readings will be posted on OAKs for each class. These readings will vary in length and complexity. They range from newspaper articles to primary literature to podcasts. They will be pivotal for in class assignments, discussion boards, homeworks, and content from the readings will appear on exams. The goal of the supplemental readings (SRs) is to expose you to recent and/or particularly fascinating (in my opinion) discoveries and controversies in microbiology. You will notice on the class schedule that for the last 1/3 of the course the SRs are yet to be determined. Should something pique your interest and you would like to delve into it further please reach out, or if you have a suggested reading.

In Class Assignments/Homeworks
Throughout the semester there will be semi-regular in class assignments/homeworks based on classwork and supplemental readings. Sometimes you will be working in small groups and sometimes individually. Sometime these be turned in at the end of the class period, sometimes they will be started in class and finished at home, and sometimes solely at home. They will be graded by the following (10, 9, 5, 0) system. If you do a thorough and complete job you get a 10, if you do an OK job with a few minor mistakes/omissions only you get a 9, if there are numerous minor mistakes, a major omission, or it is obvious that minimal effort was put in (i.e. you scrambled last minute to turn in something) you get a 5, if you turn in nothing you get a 0. I expect pretty much everybody to get 10’s/9’s on these assignments. They will more or less be graded for completion. I apologize in advance but there are simply too many students for detailed comments on each turned in assignment. Your lowest 1 ICA/HW will be dropped from your grade.
Participation/Attendance
Your participation/attendance grade will consist of discussion board posts on supplemental readings and intermittent poll everywhere questions, and occasional attendance tracking. Asking questions in class, answering questions in class, and overall contributions to the classroom environment can serve to boost your Participation/Attendance grade especially if it is lacking in other ways. Missed in class assignments, poll everywhere questions, and late assignments in general will only be accepted for excused absences. Accommodations for missed exams will only be provided for rare extenuating circumstances.

Lab Grade
A quarter of your grade will be based on the lab component of the course. A more detailed explanation of the lab portion of the class will be provided in individual lab sections.

Extra-Credit
Extra-credit opportunities are entirely up to me and will be relatively minor. IF an extra-credit opportunity is provided it will be provided to the entire student body, (ie no individual extra-credit assignments). These potential extra-credit assignments will be announced in class and are not presented in the syllabus’ grade computation.

Syllabus/Schedule Modifications
This syllabus/schedule most likely will change due to hurricanes etc. as the semester progresses depending on the learning environment. I will do my best to adhere to the syllabus as written, but changes will be at my discretion and I will announce any changes both during class and through OAKS. Make sure you stay up to date on any modifications. You should also notice a flex day built-in to the schedule. I anticipate that we will move slightly slower through material than on the syllabus and I will adjust the schedule accordingly. I will make every effort to keep exams on the scheduled dates.

Letter Grade Schedule
It is my expectation that A’s are earned with considerable hard work and effort. B’s represent above average work. C’s are average fluency of the material. And my hope is that nobody get’s a D or an F. Generally speaking the test average is somewhere in the mid-70’s. It is my intention that the ICA/HW’s, connect assignments, participation points, and your lab grade will raise everybody’s grade.

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PREREQUISITES
For this course prerequisites are BIOL 111, 111L, 112, 112L and 211 and One Year of Chemistry. "One Year of Chemistry" means you must have already completed, with passing grades, CHEM 101-101L-102-102L or CHEM 111-111L-112-112L, or the equivalent. For transfer students, the course must have transferred to the CofC as equivalent to the above. Biology also requires MATH 250 Statistics as a prerequisite to all of its upper-level classes.

This course will cover a lot of material and move relatively quickly. It is expected that you are well versed with all material covered in prerequisite classes. This is especially true for students who might have taken the prerequisites a while ago or who have gotten waivers to enroll without the prerequisites. It is your responsibility to ensure that you are up to speed on the necessary background material. If you need any assistance with topics that you are unfamiliar with, I would be happy to provide you with resources.

ATTENDANCE
As of now the expectation is that this will be fully in person. If you are feeling ill or are meant to be quarantined, do not attend class!!!! An excessive number of unexcused absences from lecture (excessive = more than 2 in lecture) or from lab (one = excessive in lab) constitutes grounds for dismissal from class. If you will be absent on official college business (e.g. athletic events, professional conference), please provide documentation in advance. Excessive excused absences especially in lab will necessitate withdrawal from the class or in rare cases, an incomplete. I of course recognize that circumstances this semester may be difficult and whether you can stay in the class is dependent on whether I deem it possible for you to make up the missed work. Depending on class circumstances resources for excused absences may include (1) zoom attendance (most classes will not be hybrid so do not count of this). (2) Recorded powerpoints (3) Powerpoint presentations (4) Notes from a peer.

Please make every effort to be on time and adhere to social distancing requirements. Electronic devices such as cell phones and smart pads may only be used for educational purposes.

Due to COVID there will be absolutely no eating or drinking in the classroom. I have no problem with you exiting class in a non-disruptive manner if you need.

IF you have a DISABILITY that qualifies you for academic accommodations, please provide a letter from Disability Services at the beginning of the semester. I will be happy to discuss your situation via zoom. For more information regarding accommodations, please contact the Office of Disability Services at (843)-953-1431, stop by their office in Lightsey Center Room 104 &/or refer to their web site at http://www.cofc.edu/~cds/. Any SNAP student must turn in their envelope at least 48 hours before the scheduled test.

The deadline for WITHDRAWAL from the course with a grade of "W" is Friday, October 29, 2021. In accordance with College regulations, withdrawal from the course after that date will be permitted only under dire and unpredictable circumstances, such as sudden serious illness and is largely out of my hands (see "Withdrawal from Courses" in the Undergraduate Catalog).

There will be three full-period TESTS based on lectures, texts, and assigned reading. Tests are tentatively scheduled for the following dates: September 23rd, 2021, and October 26th, 2021, and November 23rd, 2021

Expectations:
WORKLOAD:
As the lecture portion of this class is 3 credits. It is expected that every week there will be approximately 9 hours of work/study/review outside of class or 4.5 hours per class. For every class there will be an online textbook reading assignment (on average 1-2 hours), a supplemental reading (30 min – 1 hour), discussion board (30 min), and occasional homeworks or ICA to be finished (1 – 2 hours). The workload will vary and any remaining time should be spent reviewing material/filling out the study guide in preparation for the exams. The workload will most certainly be decreased the week of an exam.

COMMUNICATION:
With Each Other:
When working remotely and online there is the opportunity to abuse the anonymity. Rather than provide detailed guidelines, I’m just going to say act and treat each other with the same dignity as you would in person. For a more detailed considerations see this link [http://blogs.onlineeducation.touro.edu/15-rules-netiquette-online-discussion-boards/](http://blogs.onlineeducation.touro.edu/15-rules-netiquette-online-discussion-boards/) If you ever feel that someone’s online communication has made you feel uncomfortable, please bring it to my attention.

With Me:
I will be available for drop in virtual office hours during the times listed above. If you’d like to schedule additional meetings I will do my best to make myself available. I will likewise do my best to respond to all e-mails and relevant discussion board posts within one business day. You might find that a little man joins us for our meetings or his crying may interrupt us. For that matter, he may make an occasional appearance during class time as well.

I. College of Charleston Honor Code and Academic Integrity

Lying, cheating, attempted cheating, and plagiarism are violations of our Honor Code that, when identified, are investigated. Each incident will be examined to determine the degree of deception involved.

Incidents where the instructor determines the student’s actions are related more to a misunderstanding will handled by the instructor. A written intervention designed to help prevent the student from repeating the error will be given to the student. The intervention, submitted by form and signed both by the instructor and the student, will be forwarded to the Dean of Students and placed in the student’s file.

Cases of suspected academic dishonesty will be reported directly by the instructor and/or others having knowledge of the incident to the Dean of Students. A student found responsible by the Honor Board for academic dishonesty will receive a XXF in the course, indicating failure of the course due to academic dishonesty. This grade will appear on the student’s transcript for two years after which the student may petition for the XX to be expunged. The F is permanent. The student may also be placed on disciplinary probation, suspended (temporary removal) or expelled (permanent removal) from the College by the Honor Board.

Students should be aware that unauthorized collaboration--working together without permission-- is a form of cheating. Unless the instructor specifies that students can work together on an assignment, quiz and/or test, no collaboration during the completion of the assignment is permitted. Other forms of cheating include possessing or using an unauthorized study aid (which could include accessing information via a cell phone or computer), copying from others’ exams, fabricating data, and giving unauthorized assistance.

Research conducted and/or papers written for other classes cannot be used in whole or in part for any assignment in this class without obtaining prior permission from the instructor.

Students can find the complete Honor Code and all related processes in the Student Handbook at [http://studentaffairs.cofc.edu/honor-system/studenthandbook/index.php](http://studentaffairs.cofc.edu/honor-system/studenthandbook/index.php)
Advice From Previous Students Who Have Taken This Course:

- Study, come to class, take notes and **ASK QUESTIONS**
- Stay on top of the notes/lectures. Don’t get behind. A LOT of info.
- Come to class. The powerpoints are great for refreshing but aren’t good enough.
- Pay attention to slides and the amount of time spent on one topic, its likely important.
- Focus on Slides! And take notes on the slides. The slides by themselves are not enough.
- Study **every** night
- Don’t take 17 credit hours like me. Be sure you have plenty of time to devote.
- Be ready to learn and have fun
- Need to study a lot
- Review each lecture slide in depth and use the book only as a resource to supplement. Reading relevant figures/legends was helpful.
- Do the chapter reading assignments before class and stay on your game!
- Study your ass off!
- Take good notes of the slides even though they are online. Listen to repeated subject matter.
- Read and reread not just on the exam week.
- Make sure to add notes from class to powerpoints.
- Concentrate on big ideas
- You get out of the class what you put into it
- To continually review notes
- **NEVER** miss lecture!
- Keep up on studying notes and pay attention to all tables
- Don’t skip class. Print off the slides before class to bring in
- Go to class!! Focus on powerpoints.