



Course Syllabus Fall 2018- Modern Microbiology/ BIO 8023

Instructor: Dr. Justin Thornton
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Office Hours: T Th 10-11am (CST) and by appointment only

CONTACT INFORMATION:

If you have questions about material for this course, please contact Dr. Thornton via email or phone during his office hours. For all technical questions or problems, please contact the Center for Distance Education at help@distance.msstate.edu or 662-325-0278.

COURSE DESCRIPTION:

This course will cover the fundamental principles of microbiology, including microbial structure, replication, and diversity. The role of microorganisms in human health and the environment will also be discussed. This course is intended for K-12 science teachers.

PREREQUISITES:

If you are not enrolled in the MSGB program, consent from the instructor or graduate coordinator is required to enroll in this course.

LEARNING OBJECTIVES:

It is anticipated by the conclusion of this course that you will be well versed in standard microbiological methods, classifications, and processes related to microbial growth and adaptation.

REQUIRED COURSE MATERIALS:

Prescott's *Microbiology*, 10th edition by Willey, Sherwood, and Woolverton (ISBN 9781259281594) is required for this course. If you choose to use an earlier edition, you should be fine. The chapters might not match exactly, but the material on the exams is found in both editions. **You will be responsible for all material in the corresponding chapters, unless specifically told to omit certain topics.**

You are required to have access to a computer that connects to the Internet. The course materials will be accessed through BlackBoard (<https://myCourses.msstate.edu>), which requires that you have an MSU NetID and password. Each "learning module" will cover an important component of microbiology (see detailed course outline below) and will consist of three or more lectures in audio format (.mp4). PowerPoint slides that accompany each lecture are available for you to print (.pdf). Each PowerPoint slide contains embedded sound that can be played while the slide is open. Again, you are responsible for all material in the corresponding chapter, unless instructed to omit certain sections.

You must check BlackBoard daily for information directly regarding this course. You must also check your MSU email account daily, which Academic Outreach uses as the official means of communication to distance education students.

Computer and Software Requirements:

Important: The ProctorTrack system requires the Mozilla Firefox browser available for both PC and Mac computers.

System Requirements:

- OS -> Windows Vista or higher, MAC OS X 10.7 or higher. (Ideally 10.10.2)
- Browser-> Mozilla Firefox 20.0 or higher.
- Camera Resolution -> 640x480 or better
- Internet Connection -> Cable Modem, DSL or better
(300kbps download, 250 kbps upload)
- Latest version of Java (For Download: <http://java.com/en/>)

Equipment Requirements:

- Webcam
- Microphone
- Keyboard
- Mouse
- Monitor

I will provide a Proctortrack Student Manual that outline all necessary information for student to understand directions to take exams while being proctored. A sample test will be available to make sure all students understand the procedure and are in compliance with necessary system and equipment requirements.

DISCUSSION BOARDS:

Discussion boards will be initiated by the instructor for each of the topics covered in the course. You are not required to participate in the discussion board sessions. You are welcomed to place questions related to the material on the topic listed on the discussion board. This is only used for clarification of content and discussion of pertinent information. You are also prohibited from using the discussion board in an unprofessional manner. If inappropriate discussions are being conducted, one warning will be issued. The second offense will lead to the removal of the discussion board.

PACING YOURSELF:

Learning modules will be available at the beginning of the semester and remain available all semester. Lectures and PowerPoint slides will be available for 1 year from the end of the semester. You are encouraged to save the lecture materials to your computer for use in preparation for the comprehensive exam at the end of this degree program. This course is not self-paced. It is important to stay on schedule with each topic because the accompanying exams will be available for a very restricted time period.

EXAMS:

There will be 5 exams, each worth 100 points and a comprehensive exam/assignment worth 100 points total (75 pts final exam using Proctortrack + 25 pts lesson plan - lab exercise). Exams will consist of matching, multiple choice and short answers. Each exam will cover those chapters designated on your syllabus. I may add a manuscript for you to read that will coincide with material covered in those chapters. You will need to read the paper and be prepared to answer questions regarding that information. You will have 1 hour to complete each exam. The use of **any** external resources (notes, textbooks, textbook websites, the internet, other people, etc) during exams is **strictly prohibited**. You can, however, have one blank sheet of paper during the exam. You must show this sheet of paper (front and back) to the camera **BEFORE AND AFTER** the completion of your exam. You cannot write down the questions; it is only intended to provide you with a means to collect your thoughts. You are not required to use a sheet of paper. Additionally, you will not be allowed to communicate with other students (or anyone else) during the exam. This stipulation includes chat boards, discussion boards, blogs, tweets, texts, phone, email, or face-to-face interactions with friends, colleagues, other students, or relatives, etc. Exams must be taken under the supervision of a proctor. Sharing information from the exam to

others is strictly prohibited and is considered cheating. If I suspect this has occurred, I will notify the MSU Honor Council of the incident (see below for MSU's Honor Policy).

MISSED EXAM POLICY:

You are expected to take all exams within the scheduled timeframe. It is in your best interest to NOT wait until the last minute to take exams, as it is inevitable that you will have problems with technology! If you miss an exam, you will receive a zero. If your absence was due to a university-recognized excuse (see MSU AOP 12.09) **AND** you provide appropriate documentation to me, you will be allowed to make-up the missed exam. If you will be missing an exam due to a university-sponsored event, you must notify me at least one week in advance. If you must miss an exam due to an illness that will be excused (i.e. you have official documentation), you must notify me within 24 hours of the missed exam.

LESSON PLAN – Submitted at the end of the semester:

This will be worth 25% of your final exam grade. You will be required to create a lesson plan outlining an experiment pertaining to microbiology principles you have learned in this course that can be implemented in a high school setting. I will provide a rubric that explains all required information. **Please be cautious when completing this assignment! Do not find a nice online experiment and copy and paste.** You will submit this assignment through blackboard that will be monitoring potential plagiarism (*SafeAssign*). You will be required to describe the objective of the lab exercise you chose, the material needed to complete, estimated costs and how much time will be required for the class to complete. Please keep in mind what safety requirements would be needed in a high school setting in order to complete your experiment. You will be required to supply references and justification for the experiment.

COURSE GRADE DETERMINATION:

Each exam is worth 100 pts

Your grade will be the compiled score of your six exams

Grading Scale:

A	540 – 600pt
B	480 – 539pt
C	420 – 479pt
D	360 – 419pt
F	0 – 359pt

IMPORTANT UNIVERSITY DATES:

For a complete listing of relevant dates including add and drop dates, university withdrawal date, holidays, etc., see the Fall 2017 Academic Calendar at <http://www.registrar.msstate.edu/Calendars/academiccal.html>.

COURSE DATES/DEADLINES:

Below you will find information related to the chapters and lectures associated with each exam. You will also see the dates that each assessment will be available. **It is your responsibility to pay attention to these dates and to take exams during the time they are available.** Exams will become available at 5am CST on the first day of availability and will remain accessible until 11pm CST on the last day of the available period listed below. **You will only have 1 hour to complete the exam.** If you begin your exam at 10:59pm, you will still be able to complete your exam. You only have one chance to take each exam!

MSU HONOR CODE:

Mississippi State University has approved an Honor Code. It states, “As a Mississippi State University student I will conduct myself with honor and integrity at all times. I will not lie, cheat, or steal, nor will I accept the actions of those who do.”

Upon accepting admission to Mississippi State University, students immediately assume a commitment to uphold the Honor Code, to accept responsibility for learning, and to follow the philosophy and rules of the Honor Code. Students will be required to state their commitment to uphold the Honor Code on all examinations, papers, and other academic work. Ignorance of the rules does not exclude any student from the requirements of the Honor Code. For additional information please visit: <http://www.msstate.edu/dept/audit/1207A.html>

ACADEMIC MISCONDUCT:

Academic integrity is of the utmost importance as you participate in this course. You are responsible for upholding the MSU Honor Code and conducting yourself with the highest ethical standards. You are expected to do your own work.

The use of any external resources (notes, textbooks, textbook websites, the internet, other people, etc) during exams is strictly prohibited. You will not communicate with other students (or anyone else) during the exam, including chat boards, discussion boards, blogs, tweets, texts, phone, email, and face-to-face interactions, etc. Sharing information pertaining to the exam with others is also strictly prohibited.

Academic misconduct (cheating, plagiarism, forgery, etc) of any form can result in serious consequences. Penalties may include receiving a grade of “F” in this course, suspension, and/or possible expulsion. Faculty members and students are responsible for reporting cases of academic misconduct. Reports to the Academic Honesty Committee are kept for five years for students found guilty of academic dishonesty. Students have the right to appeal decisions by the committee. (<http://students.msstate.edu/honorcode/>)

You will be required to acknowledge that you adhered to the MSU Honor Code on each examination.

Title IX. MSU is committed to complying with Title IX, a federal law that prohibits discrimination, including violence and harassment, based on sex. This means that MSU’s educational programs and activities must be free from sex discrimination, sexual harassment, and other forms of sexual misconduct. If you or someone you know has experienced sex discrimination, sexual violence and/or harassment by any member of the University community, you are encouraged to report the conduct to MSU’s Director of Title IX/EEO Programs at 325-8124 or by e-mail to titleix@msstate.edu. Additional resources are available at <http://www.msstate.edu/web/security>, or at <http://students.msstate.edu/sexualmisconduct/>.

The Maroon Alert System

The Maroon Alert System includes several methods of notifying the university community of hazards and concerns. Text messages & emails may be sent to faculty, staff, and students when there is the threat of imminent danger. Messages are not sent for weather alerts or safety tips. If you receive a message and are in the area of a threat, take immediate action as directed.

To update or check your subscription to this service:

Log in to: my.msstate.edu with you MSU NetID & NetPassword

Click the three bars on the left side of the page to open the menu.

Click “Banner” and then click the “Personal Information” tab.

Click “Update Your Maroon Alert Information” to check or update your information. You are also able to send yourself a test text or email.

Don’t forget to log out of my.msstate.edu

IMPORTANT UNIVERSITY DATES:

Aug 22	classes begin
Aug 28	last day to drop a course without a grade
Sept 3	holiday
Oct 11-12	Fall Break
Oct 15	last day to drop a course with a "W"
Nov 16	last day to withdraw from university
Nov 21-23	Thanksgiving holiday
Dec 5	last day of classes
Nov 6	reading day
Dec 7-13	Finals

SAMPLE

COURSE LECTURE DETAILS

A: Introduction to Microbiology (chapters 1-6)	
1. History and Scope of Microbiology	
2. Microscopy	
3. Bacterial Cell Structure and Function	
4. Archaeal Cell Structure and Function	
5. Eukaryotic Cell Structure and Function	
6. Virus Structure and Acellular Infectious Agents	
EXAM 1: Part 1, Chapters 1-6	
Available from September 5, 5:00am CST to September 12, 11:00pm CST	
B: Microbial Nutrition, Growth and Control & Microbial Metabolism (chapters 7, 8, 10, 11)	
7. Microbial Growth	
8. Control of Microorganisms in the Environment	
10. Introduction to Metabolism	
11. Microbial Catabolism	
EXAM 2: Part B, Chapters 7, 8, 10, 11	
Available from September 26, 5:00am CST to October 3, 11:00pm CST	
C: Microbial Genetics (chapters 13,14, 16, 17)	
13. Bacterial Genome Replication and Expression	
14. Regulation of Bacterial Cellular Processes	
16. Genetic Variation	
17. Microbial Genomics	
EXAM 3: Part C, Chapters 13,14, 16, 17	
Available from October 17, 5:00am CST to October 24, 11:00pm CST	
D: Microbial Diversity and Ecology (chapters 19, 22-24, 27, 29, 32)	
19. Taxonomy and Diversity (Ch. 19, 22-24)	
27. Viruses	
29. Methods in Microbial Ecology	
32. Microbial Interactions	
EXAM 4: Part D, Chapters 19, 22-24, 27, 29, 32	
Available from Nov 7, 5:00am CST to Nov 14, 11:00pm CST	
E: Pathogenicity, Host Response, and Diseases (chapters 33, 34, 35, 38)	
33. Innate Host Response	
34. Adaptive Immunity	
35. Infection and Pathogenicity	
38. Diseases by Viruses and Bacteria (Ch. 38, 39)	
EXAM 5: Part E, Chapters 33, 34, 35, 38	
Available from November 28, 5:00am CST to December 5, 11:00pm CST	
F: Applied Microbiology (chapters 41-43)	
41. Food microbiology	
42. Biotechnology & Industrial microbiology	
43. Applied Environmental Microbiology	
Final Exam: Part F, Comprehensive Material & Chapters 41-43,	
You will submit a lesson plan separately by December 13	
Available from December 7, 5:00am CST to December 13, 11:00pm CST	