

**Course Syllabus**  
**Biology 206: Microbiology**  
**Spring Semester 2016, Moravian College**

Professor's Contact information:

Dr. Kara Mosovsky

Email: mosovskyk@moravian.edu

Office: 311 Collier Hall of Science

Office hours: Mon/Wed 10:15-11:15am,

Tues/Thurs 7:45-8:30am, also by appointment

Office Phone: (610) 861-1428

Class information:

Lecture meets: MWF 8:55am-9:45am, 302

Memorial Hall

Lab meets: WF 1:15pm-2:45pm (LA) OR

WF 2:45pm-4:15pm (LB), 303 CHoS

Dates: January 18<sup>th</sup> – April 30<sup>th</sup>, 2016

Credit hours: 1

**Course Catalog Description:** This course is designed to provide students majoring in the health sciences with an introduction to general microbiology with an emphasis on growth of microbes, antimicrobial and chemotherapeutic agents used against microbes, and their role in human health. The lab will entail teaching basic skills of microbiology, such as aseptic techniques, inoculations of microbiological media, staining of microorganisms, and identification of microorganisms. Does not count towards the biology major or minor. Prerequisites: Biology 103, 104, and Chemistry 108.

**Major Course Goals**

1. **Demonstrate an understanding of the terminology and principles of cell structure and function, bioenergetics, cell division and genetics, microbial pathogenesis, and host/pathogen interactions in infectious diseases**
2. **Acquire technical laboratory skills, such as microscopy, aseptic techniques, culturing and isolation, and biochemical testing for identification of microbes**
3. **Develop cognitive laboratory skills, such as collection and analysis of data, identification of microbes, and communication of results**
4. **Integrate themes of immunology, epidemiology, and virology into the understanding of general microbiology**

**Course Textbooks**

**Required Connect Access (online course resources):** McGraw Hill Connect access for Foundations in Microbiology, Talaro and Chess, 9<sup>th</sup> edition

**Required Lab Manual:** Microbiology Laboratory Theory and Application, 4<sup>th</sup> edition, by Leboffe and Pierce, published by Morton Publishing

## Grades

I do not *give* grades for this class, *you earn them*. Your grade will be determined from the total number of points you earn throughout the semester. Below is a list of anticipated assignments and evaluations for this semester, though the instructor reserves the right to make changes to assignments and point totals:

<b>Types of Evaluation</b>	<b>Total Points</b>
Exams (3 @ 100 pts)	300
Final Exam (partially cumulative)	120
Connect Quizzes (15 @ 10 pts each, drop 3 lowest)	120
Connect LearnSmart Modules (17 total)	100
Mid-term and Final Lab Practical (@ 75 pts each)	150
Post-lab questions	80
MMWR report	30
Lab quizzes (6 @ 5 pts each, drop lowest)	25
Unknown report	30
Attendance and active participation	30
	<b>985</b>

## Standard Grading Scale

A letter grade will be assigned based on the following final percentage of points earned:

(100 - 93.3%)	= A (Outstanding)
(93.2-90.0%)	= A-
(89.9-86.7%)	= B+
(86.6-83.3%)	= B (Above Average)
(83.2-80.0%)	= B-
(79.9-76.7%)	= C+
(76.6-73.3%)	= C (Satisfactory)
(73.2-70.0%)	= C-
(69.9- 66.7%)	= D+
(66.6-63.3%)	= D (Below Average)
(63.2-60.0%)	= D-
(59.9%)	= F (Failing)

Students are responsible for keeping track of their grades. If you need to dispute a grade on an assignment or evaluation, you will have exactly 1 week in which to do so (from when the grade is listed on blackboard). Only a final course grade ending in 0.50 - 0.99% will be rounded-up to the next whole number.

## Blackboard Course Website:

After you have enrolled in our blackboard course, login to Blackboard <https://blackboard.moravian.edu> to access our course shell. This site will contain updates and announcements, lectures slides, homework assignments, student grades, etc. for this course. I will communicate frequently through Blackboard, so please check the announcements page frequently.

## Exams

There will be three regular exams and one partially-cumulative final exam. Exams will cover material since the last exam. The format will be a mixture of all question types (multiple choice, true/false, free response, etc.). If you miss an exam for any reason, it is YOUR responsibility to coordinate with the instructor and take the exam ASAP. If you do not contact the instructor within 24 hours after missing an exam you will start with a 5% grade deduction for that exam. If you do not take the alternative make-up exam within 24 hours of the exam, you will start with an additional 5% grade deduction for that exam. **There will be NO make-up exam for the partially-cumulative final exam!**

## Connect Quizzes

There will be an online Connect quiz for each chapter of the textbook that we cover in this course (except Ch. 17). Chapter quizzes are low in point value, but are designed to help you gauge how prepared you are for the upcoming exam. Quizzes are due in “batches”, the same day of the exam that covers those chapters. Quizzes **MUST** be taken individually. You may use class notes or the textbook during the quizzes, but time is extremely limited (12 minutes), so you should take the quizzes only after you have adequately studied. You will be allowed only one submission for each quiz. There will be **no make-ups for missed quizzes**. Emergencies, computer problems, or other unforeseeable events cannot be individually accommodated by extending deadlines. For these reasons, **your three lowest quiz grades will be dropped** at the end of the semester. Quiz grades will be added to Blackboard in “batches” after the due date.

## Connect LearnSmart Modules

For each chapter you will be given an online LearnSmart assignment on Connect. These assignments will involve reading the chapter and answering adaptive questions to determine your mastery of basic learning objectives in that chapter. Each of these chapter assignments is due before class on the day we start the lecture for that chapter in order to prepare you for lecture and class activities (exceptions Ch. 1 and 2). Your overall average percentage grade for these assignments will be converted to a 100-point LearnSmart Module grade at the end of the semester. For example, if you have a 95% average for all assignments, you will get a 95 out of 100 points as your LearnSmart Module grade on Blackboard. Due to the nature of calculating this grade, your LearnSmart Module grade will only be added to Blackboard at the very end of the semester. Use the schedule (or Connect) to see when assignments are due.

## Lab Practicals

Lab practicals will test your knowledge and application of the techniques and theory used in the laboratory component of our class. The format is mostly multiple choice with some free response and a demonstration of correct lab techniques. **There will be NO make-up lab practicals, so make sure you can attend on the dates they are scheduled.**

## Post-lab Questions

These questions will be assigned at the end of one class and will be due 1 week later before the start of lab. These questions will help you think critically about the experimental observations and results of your lab. While you may collaborate with classmates, the final assignment that you hand in must only represent YOUR original work. I will deduct 10% of points for each partial day the assignment is turned in late (starting after the assignment is originally collected). You may always turn-in assignments ahead of time (in class, my office, email, etc.)

## Pre-lab Quizzes

There will be 6 random pre-lab quizzes throughout the semester. These may or may not be announced beforehand. Their purpose is to ensure that students come prepared to lab having already read through the lab exercises that will be performed that day. Quizzes will cover that day's lab exercises, but may also cover recent lab exercises. The quizzes will be passed out at the beginning of lab. If you are late to lab, you will not be given additional time to take the quiz. **Missed pre-lab quizzes cannot be made up, but your lowest quiz grade will be dropped at the end of the semester.**

## Unknown Organism Write-Up

Students will work to identify an unknown bacterial species. Students will be required to write-up the results and analysis related to identifying their microorganism. More information and a specific grading rubric will be handed out at the start of the unknown experiments. There will be a 5 pt. grade deduction for each day the write-up is turned in late.

## Tips for Success in this Course

- 1) Come to class ready to engage, learn, and participate
- 2) Study notes, slides, lab manual, and handouts covered in lecture and lab; read the book to reinforce difficult concepts; practice with LearnSmart
- 3) Take good notes during lecture AND lab. Everything covered is fair game for a quiz or exam.
- 4) Understand that there is a steep learning curve at the beginning of this course.
- 5) Be ready to put in a lot of effort for this course! Understand that you will likely spend about 8-12 hours outside of class studying and preparing for this class each week
- 6) Seek help EARLY if you are struggling and ask questions immediately, as they arise
- 7) Familiarity does not equal mastery
- 9) Attendance and participation pay off! There is usually a direct correlation between your attendance/active participation and your final grade

## Other course policies:

**Attendance:** You are expected to attend every lecture and lab. I will make a note of absences each day and judge whether points will be deducted from your attendance and participation grade. If you miss a class, you are still responsible for the material that we covered in class as well as any assignments due or assigned that day. It is the YOUR responsibility to contact a labmate, stop by the instructors office hours, or come early to lecture/lab to find out what you missed ASAP.

Missed labs are not easy or convenient to make-up and usually leave your lab partner with extra work! You are allowed to miss 2 lab periods (entire or partial) with no penalty to your grade. Any additional partial or entire missed lab periods will result in a 5pt deduction from your attendance and participation grade.

**Plagiarism:** Using someone else's words, ideas, or images and calling them your own, is academic fraud! You may NEVER use material (words, ideas, images) created by someone else and hand it in as your own work — even if they give you their permission. All work for this class must be YOUR ORIGINAL work. **If you are caught plagiarizing, you may fail the assignment and/or the course, at the discretion of the instructor and department chair. In addition you will receive academic sanctions that will affect your grade and non-academic sanctions as a violation of the academic honesty policy in the student handbook. For more information on Moravian's academic honesty policy, please visit the student handbook at:** <http://www.moravian.edu/studentLife/handbook/academic/academic2.html>

**Biosafety:** All students are expected to follow the safety precautions as outlined for each lab session. Students are required to sign a laboratory safety agreement before participating in lab.

**Be Responsible for your Success** - It is YOUR responsibility to make sure that you are consistently checking Blackboard for announcements, working through the chapter readings in a timely manner, and completing other assignments on time. Ultimately, it is YOU who will determine your own success in this course. The tools will be provided for you to learn the required material, but it will take a major time commitment on your part.

**Cheating:** There is a zero tolerance policy on cheating in my course. You may not copy or use any other student's work (or answers) as your own. If group work is permitted, you must ensure that your answers differ significantly in wording. Students that cheat will receive zero points for that assignment, and may receive a failing grade for the entire course (at the instructor's discretion), irrespective of previously earned points. Furthermore, acts of cheating will be reported to the appropriate personnel in your department. **DO YOUR OWN WORK!**

**Cell phones/cameras:** Please keep cell phones muted and out of sight during lecture. If you need to use your phone, please quickly step out of the classroom to do so (I won't mind). You may not use any video or camera equipment in the laboratory--that includes camera phones.

This is to prevent transfer of potentially infectious organisms from your hands to phones that will leave the room and later touch your face!

**Food/drink:** NO FOOD OR DRINK CONSUMPTION IN THE LABORATORY! Err on the side of caution and assume all lab surfaces **may** be contaminated, as this is a microbiology lab. Please keep all food and drink outside the classroom or safely tucked away.

### **Disabilities Policy**

Students who wish to request accommodations in this class for a disability should contact the Academic Support Center, located in the lower level of Monocacy Hall, or by calling [610-861-1401](tel:610-861-1401). Accommodations cannot be provided until authorization is received from the Academic Support Center

### **Need a Tutor?**

The Academic Support Center houses Disability Support and Greyhound Tutoring on the first floor of Monocacy Hall and can be reached at [610-861-1401](tel:610-861-1401).

Greyhound Tutoring provides course-specific tutors to Moravian students, free of charge. If you would like to work with a Greyhound Tutor to boost your academic success, please request a tutor through <http://bit.ly/NeedTutorMC> (case-sensitive). Plan ahead! It takes 2-3 business days to connect you with a tutor.

Please email Dana Wilson ([wilsond@moravian.edu](mailto:wilsond@moravian.edu)), Tutor Coordinator, for more information about tutoring. Please email Laurie Roth ([rothl@moravian.edu](mailto:rothl@moravian.edu)), Director of Academic and Disability Support, for more information about disability support.

**\*\*Your instructor reserves the right to modify the syllabus, course policies, schedule, and/or assignments and point values at any time during the semester and will notify students of any changes that take place.**

### Tentative Course Schedule

Week	Date	Lecture Topic	Relevant Textbook Chapters	LAB	LAB MANUAL EXERCISES
1	Jan. 18	Syllabus, world without microbes activity, intro to microbiology	1		
	Jan. 20	Intro to microbiology	1	Lab rules, safety, environmental unknown, body sample	
	Jan. 22	Intro to microbiology	1	Microscope Basics	3-1 and other
2	Jan. 25	Tools of the Laboratory	3		
	Jan. 27	Tools of the Laboratory	3	Inoculations, Streak Plate	1-3, 1-4 read: 2-2, 2-3, 2-4
	Jan. 29	Prokaryotic Cell Structure and Function	4	Bacterial smear and simple stain	3-5
3	Feb. 1	Prokaryotic Cell Structure and Function	4		
	Feb. 3	Eukaryotic Structure and Function	5	Gram stain, acid-fast stain, endospore stain	3-7, 3-8, 3-10
	Feb. 5	Eukaryotic Structure and Function	5	Gram stain, acid-fast stain, endospore stain	3-7, 3-8, 3-10
4	Feb. 8	<b>EXAM 1 (Quizzes due for Ch. 1,3,4,5)</b>			
	Feb. 10	Viruses	6	Virus titer	6-5 and pgs. 853-854
	Feb. 12	Viruses	6	Virus titer	6-5 and pgs. 853-854
5	Feb. 15	Microbial Nutrition, Ecology, and Growth	7		
	Feb. 17	Microbial Nutrition, Ecology, and Growth	7	Aerotolerance, Temperature, UV	2-7, 2-8, 2-9 and other
	Feb. 19	Physical/Chemical Methods of Microbial Control	11	Aerotolerance, Temperature, UV	2-7, 2-8, 2-9 and other

6	Feb. 22	Physical/Chemical Methods of Microbial Control/Chemotherapeutic Drugs	11, 12		
	Feb. 24	Chemotherapeutic Drugs	12	Hand washing, Kirby Bauer, disinfectants and antiseptics	7-3 and other
	Feb. 26	Antimicrobial Resistance	12	Hand washing, Kirby Bauer, disinfectants and antiseptics, Review for Mid-term Lab Practical	7-3 and other
7	Feb. 29	<b>EXAM 2 (Quizzes due for Ch. 5, 6, 7, 11, 12)</b>			
	Mar. 2	Microbiota	13	<b>Mid-term Lab Practical</b>	
	Mar. 4	Microbiota, Host-Pathogen Interactions, Epidemiology	13	MMWR activity	7-5 and other
8	Mar. 7	<b>Spring Break = NO CLASS</b>			
	Mar. 9	<b>Spring Break = NO CLASS</b>		<b>Spring Break = NO CLASS</b>	
	Mar. 11	<b>Spring Break = NO CLASS</b>		<b>Spring Break = NO CLASS</b>	
9	Mar. 14	Host-Pathogen Interactions, Epidemiology	13		
	Mar. 16	Host-Pathogen Interactions, Epidemiology	13	Epidemics Lab, MMWR activity	7-5 and other
	Mar. 18	Innate Immunity	14	Epidemics Lab, MMWR activity	7-5 and other
10	Mar. 21	Innate Immunity	14		
	Mar. 23	Adaptive Immunity	15	Media Prep Day	1-2 and other
	Mar. 25	<b>Easter Recess = NO CLASS</b>		<b>Easter Recess = NO CLASS</b>	
11	Mar. 28	Adaptive Immunity	15		
	Mar. 30	Vaccines	15	Biochemical tests, Snyder test	5-6, 5-7, 4-3, 4-4, 5-25, 5-27, 7-1
	Apr. 1	<b>EXAM 3 (Quizzes due for Ch. 13, 14, 15)</b>		Biochemical tests, cont.	5-6, 5-7, 4-4, 5-4, 5-9, 5-18, 5-8, 5-20, 4-5, 5-3, 7-1
12	Apr. 4	Disorders in immunity	16		
	Apr. 6	Disorders in immunity	16	Biochemical tests, cont.	
	Apr. 8	Clinical Microbiology	17	Gram positive or Gram negative unknown	
13	Apr. 11	Microbial Metabolism	8		



	Apr. 13	Microbial Metabolism	8	Gram pos/neg/ unknown	
	Apr. 15	Microbial Genetics	9	ELISA HIV detection	11-6
14	Apr. 18	Microbial Genetics	9		10-3
	Apr. 20	Biotechnology	10	pGLO plasmid transformation	
	Apr. 22	Biotechnology	10	pGLO plasmid transformation	10-3
15	Apr. 25	TBD			
	Apr. 27	TBD		Review for Final Lab Practical, Clean-up	
	Apr.29	TBD, wrap-up and exam review		<b>Final Lab Practical</b>	
16	<b>Monday, May 2</b>	<b>Partially Cumulative Final Exam (11:30am-1:30pm) AND Quizzes due for Ch.16, 17, 8, 9, 10)</b>			