

¹ | Microbiology Spring 2018

Microbiology (MCB 2010C)	4 credit hours
Meeting times:	Lab T 5:30pm-8:15pm (AHS 320) Lecture R 5:30pm-8:15pm (HSB 146)
Lecturer:	Teresa Larson, PhD
Office Hours:	By appointment only
Contact Information:	tjones185@valenciacollege.edu

Required Course Materials

- *Microbiology: A Systems Approach*. Cowan, M. K., Fifth Edition, McGraw Hill.
- *Microbiology: Laboratory Theory and Application*. Leboffe, M.J. and Pierce, B. E.; Third Edition (Brief); Morton Publishing.
- Additional Laboratory supplies: lab coat, disposable gloves, Sharpee marker, and a scientific calculator. Cell phone calculators are NOT permitted on exams.

Course Description and Philosophy

MCB 2010C is a four-credit course with lecture and laboratory that is designed to provide an overview of topics in clinical microbiology. As a student, you will integrate these two components as a means to build your understanding of microorganisms. In this course, you will study topics that hopefully catch your interest and engage you over the course of the semester, if not for a lifetime. The broad topics we discuss in MCB2010C include a survey of microbial forms with an emphasis on the following aspects of bacteria and viruses: morphology, physiology, genetic mechanisms, and control of microorganisms. Pathogenic processes and microbes are also discussed in detail.

The philosophy framing this course is that students benefit from learning to think critically. In order to understand and respond thoughtfully to the topics we examine, you must understand certain biological and chemical principles as well as be able to think through complex issues that may not have easy answers. For this reason, I will frequently emphasize the nature of science and how scientific inquiry is used to understand the natural world. In other words, I want you to learn how to “think like scientists.”

The intended learning outcomes for MCB2010C are for students to be able to:

1. Identify the major milestones in microbiology
2. Describe how macromolecules contribute to the functions necessary for microbial life
3. Classify microorganisms according to a common taxonomic hierarchy
4. Differentiate between prokaryotic and eukaryotic organisms and explain the function of each structure in both cell types
5. Gain an understanding of viruses by explaining viral structure, multiplication, spread and control

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6. Explain basic microbial metabolism and summarize what is needed for the growth of microorganisms
7. Describe all the chemical and physical means available to control microbes and to identify those that provide sterility
8. Identify the mechanism of action of commonly used antimicrobial drugs and the concerns associated with the development of drug resistant strains
9. Model their knowledge of molecular genetics and recognize the importance of basic genetic engineering
10. Demonstrate the appropriate use of epidemiological terminology in context of public health
11. Identify the mechanisms of pathogenicity and distinguish the different levels of immunity operating in the human body
12. Identify the causes of major human infectious disease and relate that information to the appropriate organ system
13. Demonstrate a working knowledge of aseptic technique and microscopy
14. Integrate their lab knowledge to identify unknown microbes and determine how appropriate antimicrobial drugs are chosen for given bacterial infections

Your Role in MCB2010C

Participation

Your steady efforts are needed. As this is a four-credit course, you can expect that it will require **at least 15 hours** each week. Eight of these hours will be structured: 4 in lecture, and 4 in laboratory. You will need additional time to prepare for lecture, to complete assignments, and to study for quizzes and exams.

Collaboration

Valencia has excellent students. In MCB 2010C, expect to learn from your peers and to form friendships that may last long after the semester ends. You will have many opportunities to work together during lecture, in lab, and even outside of class if you choose to do so. Sometimes you will work in small groups of two or three people; sometimes the groups will be larger. Many of your future professions require teamwork, so these opportunities will develop the communication skills that you will need.

Your Voice

As an instructor, I value my students' feedback and want to establish a direct line of communication. For this reason, I encourage you to reach out to me as much as possible. Asking questions before, during, and after class is highly encouraged. Email is the most efficient way to communicate with me throughout the week. I will answer email as quickly as possible and in the order that they are received.

Blackboard

MCB 2010C uses Blackboard as its online course management system. Be sure to visit our course site frequently to access readings and study questions for quizzes and exams, lab quizzes, Mastering Biology assignments, grades, and the "News of the Week."

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Respect

It is important that we all follow some basic etiquette rules in the classroom and laboratory. First and foremost, **be on time** to all class meetings. Please do not engage in other activities (such as texting, talking, surfing the web, watching videos on your computer, reading the newspaper, etc.) during lecture or lab, as these activities are disruptive and distracting to those around you. **The use of cell phones is strictly prohibited in the classroom, and the use of laptops is restricted to following lecture slides and note taking.**

Course Policies in MCB2010C

- Regular and prompt attendance is essential to learning and to passing almost any class. Therefore, **please be on time** for both lectures and labs. Should you miss class for any reason, it is your responsibility to gather class notes you miss. I will take attendance at the beginning of every class meeting.
- All assignments and online quizzes that are not submitted by the stated deadline results in a grade of zero for that task. **This class does not offer make up assignments or extra credit.**
- The deadline for dropping MCB 2010C for a **full tuition refund** is **January 16, 2018 at 11:59pm.**
- The **withdraw deadline** for the Spring 2018 semester is **March 30, 2018 at 11:59pm.** I will not withdraw any student for any reason. It is your responsibility to withdraw before the withdrawal deadline and to be aware of the date of the withdrawal deadline. According to Valencia's policy, "a student who withdraws before the withdrawal deadline will receive a W. A student is not permitted to withdraw after the withdrawal deadline. Any student who withdraws or is withdrawn from a class during a third or subsequent attempt in the same course will be assigned a grade of F." Make sure to meet with a financial and an academic advisor before withdrawing from a class.
- Laboratory safety: Because the labs may require the use of hazardous biological and chemical materials, there will be NO EATING, DRINKING, OR CHEWING GUM in the lab. Application of makeup and/or lip balm in the lab is also prohibited. Water bottles or food should not be present in the lab (**and lecture classroom**) at any time. You are also required to wear shoes that cover your feet during lab, meaning NO OPENED-TOE SHOES OR SANDALS can be worn in the laboratory under any circumstances. Arrive on time to each lab with all the required materials in order to receive all participation points available for that day (explained below).

Grading in MCB2010C

- **Assigned homework and quizzes** are due by **the stated due date and time.** No exceptions.
- **Lecture Quizzes** are due online each Thursday after lecture except when exams are scheduled. Ten quizzes will be given during the semester, each worth 20 points. Quizzes will be given on the following Thursdays:
 - January 18, 25
 - February 1, 15, 22
 - March 1, 22, 29
 - April 5, 19

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- **Exams** will be held in lecture. Three midterm exams will be given during the semester, each worth 100 points. A 200-point final will be given during finals week. Exams will be given on the following Thursdays:
 - February 8
 - March 8
 - April 12
 - April 26 (final)
- If you unexpectedly must miss a quiz or an exam because of a serious injury / illness, I will arrange a **LATE** quiz or exam for you. **Serious injury or illness means you require medical attention.** Proof of medical attention will be required to make up a missed exam or quiz.
- **Laboratory** is held on Thursday each week. You will be awarded up to 10 points each week for laboratory performance (points explained below), and 20 points each week for lab quizzes due each Thursday at midnight. Content from the laboratory also will appear on lecture exams. **Note: If you miss two laboratory experiments you automatically fail the course.**

Laboratory performance points are deducted as follows:
 - 2 pts: No lab manual, disposable gloves, Sharpee, or lab coat
 - 2 pts: Food or drink present in the laboratory at any time
 - 2 pts: Lab tables not cleaned
 - 2 pts: Assigned microscope left improperly attended or not put away properly, unattended Bunsen burner
 - 2 pts: Arrive after lab has begun
 - 2 pts: Improper disposal of biohazardous waste
- The **midterm lab exam** will be held in lab on **Tuesday, February 27th at 2:30pm**. The **final lab exam** will be held **Tuesday, April 17th at 2:30pm**. The **final lecture exam** will be held **Thursday, April 26th at 1:00pm**. These times and dates are **not negotiable**. If you do not take these final exams you will receive an F for your final grade.

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- A **point system** is used in MCB 2010C to assign grades. You earn points for a variety of activities:

10 Lecture Quizzes	200 points	20 points/quiz
3 Midterm Exams	300 points	100 points/exam
11 Lab Quizzes	220 points	20 points/lab
11 Lab Performance	110 points	10 points/week
2 Laboratory Exams	200 points	100 points/exam
Final Exam	200 points	

TOTAL 1230 points

Again, to pass the course you must not have missed 2 laboratory experiments. Assuming you meet this requirement, your grade will be assigned as follows:

A 90.0 – 100%
B 80.0 – 89.9%
C 70.0 – 77.9%
D 60.0 – 69.9%
F Below 60%

NOTE: *Grades are not assigned on a curve and you are not competing with your classmates for a grade. I reserve the right to lower the grade cut-offs, but these cut-offs will NOT be raised.*

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Date	Lecture	Assessments	Textbook Reading	Laboratory & Lab Manual Readings
Week 1 T Jan 9	Introduction Chapter 3	Lab Quiz 1 due 11:59pm		Lab introduction Read pp. 1-8 Exercises 2-1, 3-1, 3-3
R Jan 11	Chapter 1		Chapters 1 **Chapter 3 covered in lab	
Week 2 T Jan 16		Lab Quiz 2 due 11:59pm		Culturing Bacteria and Using the Microscope Read Exercise 1-3, review 3-1, pp. 67-76 Exercises 1-4, 1-5, 3-3
R Jan 18	Chapter 2	Quiz 1: Chapters 1,3 Due 5:15pm	Chapter 2 **Chapter 3 covered in lab	
Week 3 T Jan 23		Lab Quiz 3 due 11:59pm		Staining I pp. 79, 83, 173-176 Exercises 3-4, 3-5, 3-10
R Jan 25	Chapter 4	Quiz 2: Chapter 2, 3 Due 5:15pm	Chapter 4 **Chapter 3 covered in lab	
Week 4 T Jan 30		Lab Quiz 4 due 11:59pm		Staining II pp. 95, 227-228 Exercises 3-6, 3-7, 3-9, 4-1 through 4-6
R Feb 1	Chapter 5	Quiz 3: Chapter 4 Due 5:15pm	Chapter 5	
Week 5 T Feb 6		Lab Quiz 5 due 11:59pm		Physical Growth Factors for Bacterial Growth Review pp. 95 Exercises 2-6, 2-8, 5-10 through 5-13, 5-16
R Feb 8	Chapter 6	EXAM 1 CHAPTERS 1-5	Chapter 6	
Week 6 T Feb 13			Lab Quiz 6 due 11:59pm	Introduction to Biochemical Test Media **Read pp. 77,207,237 (may not be correct) Exercises 5-4, 5-5, 5-6, 5-9, 5-19, 5-21, 5-23
R Feb 15	Chapter 7	Quiz 4: Chapter 6 Due 5:15pm	Chapter 7	

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Date	Lecture	Assessments	Textbook Reading	Laboratory & Lab Manual Readings
Week 7 T Feb 20				NO LAB THIS WEEK
R Feb 22	Chapter 8	Quiz 5: Chapter 7 Due 5:15pm	Chapter 8	
Week 8 T Feb 27				MID TERM LAB EXAM Analyze experiment results from last week
R Mar 1	Chapter 9	Quiz 6: Chapter 8 Due 5:15pm	Chapter 9	
Week 9 T Mar 6		Lab Quiz 7 due 11:59pm		Culture and Sensitivity Read pp. 545, Exercises 9-1, 9-4, 9-5 Exercises 9-1, 7-2
R Mar 8	Chapter 11	EXAM 2 CHAPTERS 7-9	Chapter 11	
Week 10 T Mar 13	SPRING BREAK			
R Mar 15	SPRING BREAK			
Week 11 T Mar 20		Lab Quiz 8 due 11:59pm		Unknown ID and Antibiotic Selection Read pp. 573-574; Exercise 9-5
R Mar 22	Chapter 12	Quiz 7: Chapter 11 Due 5:15pm	Chapter 12	
Week 12 T Mar 27		Lab Quiz 9 due 11:59pm		DNA Lab Read pp. 509-512 Exercises 2-12, 8-2, 8-3
R Mar 29	Chapter 13 & 14	Quiz 8: Chapter 12 Due 5:15pm	Chapter 13, 14	

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Date	Lecture	Assessments	Textbook Reading	Laboratory & Lab Manual Readings
Week 13 T Apr 3		Lab Quiz 10 due 11:59pm		Immunology Lab Exercises 8-6, 7-1, 7-4
R Apr 5	Chapter 15	Quiz 9: Chapter 13,14 Due 5:15pm	Chapter 15	
Week 14 T Apr 10		Lab Quiz 11 due 11:59pm		Human Microbiology/Epidemiology Simulation Lab Analysis Exercise 6-5
R Apr 12	Chapter 16	EXAM 3 CHAPTERS 11-15	Chapter 16	
Week 15 T Apr 17		Quiz 10: Chapter 16 Due 5:15pm		FINAL LAB EXAM
R Apr 19	Review			
Week 16 R Apr 26		FINAL EXAM CHAPTERS 1-16		

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Additional Course Policies

Students with Special Needs: All Valencia students are entitled to an accessible, accommodating, and supportive learning environment. I strive to create an inclusive learning environment for all of my students. If you have special circumstances that may affect your performance in this course, please contact me as soon as possible at the beginning of the semester to arrange accommodations. Any information you share will remain strictly confidential. Students with disabilities who qualify for academic accommodations must provide a letter from the Office for Students with Disabilities (OSD) and discuss specific needs with me within the first two weeks of class. The OSD determines accommodations based on appropriate documentation of disabilities. Information about the Office for Students with Disabilities can be found at the following website: <http://valenciacollege.edu/osd/CurrentStudents.cfm>.

Baycare Behavioral Health's Student Assistant Program: College is an important time in your life, and if you are struggling with personal issues such as stress management, drug or alcohol abuse, or coping with daily activities, I strongly encourage you to seek support. Valencia students can get immediate help that may assist them with psychological issues dealing with stress, anxiety, depression, adjustment difficulties, substance abuse, time management as well as relationship problems dealing with school, home or work. Students have 24-hour unlimited access to the Baycare Behavioral Health's confidential student assistance program phone counseling services by calling (800) 878-5470. Three free confidential face-to-face counseling sessions are also available to students.

Academic Misconduct: All Valencia policies regarding ethics and honorable behavior apply to this course. Academic misconduct, including any form of cheating, is regarded as a very serious offense and may result in a score of zero on a given assignment or test, a failing grade in this course, or expulsion from the college. In an examination or quiz setting, unless the instructor gives explicit prior instructions to the contrary, violations of academic integrity shall consist of any attempt to receive assistance from written or printed aids, from any person or papers or electronic devices, or of any attempt to give assistance, whether the student doing so has completed his or her own work or not. Other violations include, but are not limited to, any attempt to gain an unfair advantage in regard to an examination, such as tampering with a graded exam or claiming another's work to be one's own.

Valencia's Core Competencies: While you learn about biology, make sure to also learn and apply the competencies described in the Student Handbook:

- **Think:** Think clearly, critically, and creatively, analyze, synthesize, integrate and evaluate in many domains of human inquiry.
- **Value:** Make reasoned judgments and responsible commitments.
- **Communicate:** Communicate with different audiences using varied means.
- **Act:** Act purposefully, effectively, and responsibly.

By mastering these 4 interrelated competencies, you will be well prepared to succeed in this class, Valencia, and the rest of the world. (If you have not read the handbook, you can access it through the following link: <http://www.valenciacollege.edu/pdf/studenthandbook.pdf>.)

Final note: I reserve the right to modify the contents of this syllabus as needed at any time during the semester.