

MCB 2010C Microbiology (Mixed-Mode)
Valencia College, Fall 2022
CRN 15217, 4 credit hours



Instructor: Dr. Sarah Rosario
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Office: AHS 217
Course Dates: August 22-December 11, 2022
Office Hours: M, W, F, 10am-2pm, via Zoom (Meeting ID 785 841 3189, Passcode 349052)
T, R 12:45-1:15pm, in person, AHS 217

What will I learn?

This is a lecture- and lab-based course designed to provide students with an overview of the major concepts involved in clinical microbiology. It presents students with a survey of various types of microorganisms with an emphasis on the study of bacteria. The areas of study for this course include bacterial morphology, physiology and genetics, eukaryotic microbes and viruses, bacterial pathogenesis, human disease and epidemiology, and host defense mechanisms. It will serve as a foundation for advanced courses in biology and allied health sciences.

The lab is an integral component of this course and is designed to reinforce and extend the course material within this setting. The procedures of scientific inquiry will be heavily relied upon and the lab experience is an excellent way to accomplish many class objectives. Although often taught in a collaborative, “hands-on” manner, you are individually responsible to know and be able to perform each lab. Lab and lecture are designed to complement each other and are not mutually exclusive of each other.

What are the goals of this course?

To prepare nursing and other allied health majors to function safely and knowledgeably in environments where pathogenic microbes are present causing human disease or where microbes are the subject of academic, medical, or scientific inquiry. At the end of the course, students will be able to:

- Compare the characteristics of bacteria, fungi, protozoa, helminths, viruses, and prions, and describe the unique characteristics of each.
- Demonstrate proficiency in the use of microscopy and staining procedures that aid in the identification of bacteria.
- Compare bacterial and eukaryotic genome structure and replication, transcription, and translation strategies.
- Explain viral structure, multiplication, spread, spread and control.
- Explain basic microbial metabolism, the products of microbial metabolism, and the growth conditions required to encourage microbial growth in a laboratory.
- Describe gene regulation and the effects of mutations on the genotype and phenotype of bacterial and eukaryotic organisms.
- Compare and give examples of horizontal gene transfer through conjugation, transformation, and transduction.

- Apply principles of molecular genetics to model of basic genetic engineering techniques.
- Discuss how various chemical, physical, mechanical, and biological means to control microbes to protect individuals who are at risk for infection.
- Identify the mechanism of action of commonly used antimicrobial drugs and the concerns associated with the development of drug-resistant strains.
- Describe the components of the nonspecific and specific immune system and give examples of how each component protects in the human body from invading pathogens.
- Describe how human factors affect the human microbiome and alter susceptibility to infection and disease.
- Identify the role of virulence factors in causing disease.
- Illustrate how vaccines promote immunological memory and herd immunity against vaccine-preventable diseases.
- Demonstrate proper aseptic technique to reduce infectious disease transmission.
- Apply universal precaution strategies that are important in limiting pathogen spread and reducing healthcare-associated infections.
- Explain the steps taken by public health institutions to manage disease spread and limit potential outbreaks.
- Demonstrate the use of proper personal protective equipment (PPE) and procedures for handling infectious materials and biological waste.
- Identify biosafety measures that should be put in place to protect patients, healthcare providers, and themselves.
- Identify bacterial pathogens using appropriate bacterial staining methods, culture media, and biochemical tests.
- Describe techniques that are used to identify and quantify pathogens for reporting purposes.
- Describe how infectious agents are identified in the diagnosis of disease and relate that information to the appropriate organ system.
- To apply the scientific method process when analyzing laboratory results and medical information.

Valencia College Core Competencies

The faculty of Valencia College has identified four core competencies that define the learning outcomes for a successful Valencia graduate. These competencies are at the heart of the Valencia experience and provide the context for learning and assessment at Valencia College. You will be given opportunities to develop and practice these competencies in this class. The four competencies are:

1. **Think** - think clearly, and creatively, analyze, synthesize, integrate and evaluate in the many domains of human inquiry
2. **Value** - make reasoned judgments and responsible commitments
3. **Communicate** - communicate with different audiences using varied means
4. **Act** - act purposefully, effectively, and responsibly

What do materials do I need?

1. Cowan. Microbiology: A Systems Approach, 6th Edition (2020). McGraw-Hill. (eText)
2. CONNECT/LEARNSMART ACCESS CARD
3. Additional materials will be available on Canvas

Valencia College uses the Canvas learning management system, and this course requires the use of the Connect program from McGraw-Hill. Reliable access to the internet is necessary to complete the requirements of the course. It is recommended that students use the Chrome or Firefox browsers.

What are the expectations about class attendance?

This is a mixed- mode course. The lecture portion of the course is entirely online, and we will meet for hands-on laboratory activities once a week. The lecture materials and assignments are available in Canvas 24 hours a day, 7 days a week. Logging into the course regularly throughout the week will help you to manage your time and keep up with the course schedule. You should have reliable access to the internet. Computer labs are available for student use on each Valencia campus. On the West Campus the Computer Access Lab is in the library, Building 6, Room 101.

Weekly laboratory sessions will provide you an opportunity to apply the concepts learned during lecture in hands-on activities. In the lab, you will learn techniques and procedures that are essential for a success in future life sciences courses. You will prepare for the activities by reading the pre-lab materials in the laboratory manual. It is important that you arrive on time for lab because your professor will go over the materials and procedures at the beginning of class. Please note, to protect your safety, you will not be admitted to the laboratory if you are not wearing proper attire. You will be provided with a lab coat and must wear closed toed shoes. To ensure that you get the most out of the learning experience, in-person laboratory attendance is mandatory. If you miss a lab session, you will not be permitted to complete the laboratory assignments. Exceptions may be made if you contact your professor within 48 hours to explain your absence. Students that repeatedly miss lab will not be able to successfully complete the course. **If you do not attend lab during the first week will identify you as a “no show” for attendance purposes and will result in an administrative withdrawal from class.**

How is my grade determined?

Grades will be calculated as follows:

Grade Component	Percentage
Unit Exams	50%
Chapter Quizzes	15%
Lab Assignments	10%
Homework (Connect)	15%
Class Participation	10%

A = 89.5-100%, B = 79.5-89.4%, C = 69.5-79.4%, D = 59.5-69.4%, F = below 59.5%

Under no circumstances will your test scores, total points, or final grades be discussed on the telephone or over e-mail. FERPA rights to privacy prevent the divulging of scores or related materials by these means. Assignment scores and current course average can be accessed in Canvas.

Exam Policy: All quizzes will be administered through Canvas. Students will be required to use the Respondus Lock-Down browser. This is an extension for the Chrome browser and is required to access the quizzes in Canvas. Exams will be administered in-person during weekly laboratory sessions.

The time allowed for chapter quizzes will be 20 minutes. The time allowed for unit exams will be 75 minutes.

How do I get help from my professor?

Dr. Rosario will be available to assist students directly Monday, Wednesday and Friday from 10am to 1pm. During those times she is available to meet with students online using Zoom (Meeting ID 785 841 3189, Passcode 349052). She will also be available in person on Tuesdays and Thursdays from 12:45-1:15pm in AHS 217. The preferred method of communication is email (srosario32@valenciacollege.edu). If you need help outside of those hours, do not hesitate to reach out. Dr. Rosario will respond as quickly as possible.

Late Work/Makeup Policy: Late work will be accepted without penalty.

Important Dates

August 22- Class begins
 August 29- Drop/Refund Deadline
 September 5- Labor Day- College Closed
 September 15-Exam I
 October 6- Exam II
 October 27- Exam III
 October 28- Withdrawal Deadline - "W" Grade
 November 17- Exam IV
 November 23-27- Thanksgiving Break- College Closed
 December 8- Exam V
 December 11- Classes end

Course Schedule:

Week Of	Module
UNIT I	
August 22	Module 1- Overview of Microbiology
August 29	Module 2- The Chemistry of Biology
September 5	Module 3- Tools for the Laboratory: Methods for Studying Microorganisms
UNIT II	
September 12	Module 4- Prokaryotic Microorganisms
September 19	Module 5- Eukaryotic Cells Microorganisms
September 26	Module 6- Acellular Pathogens
UNIT III	
October 3	Module 7- Microbial Nutrition and Growth
October 10	Module 8- Microbial Metabolism
October 17	Module 9- Microbial Genetics
UNIT IV	
October 24	Module 10- Host-Pathogen Interactions
October 31	Module 11- Controlling Microbial Growth
November 7	Module 12- Antimicrobial Chemotherapy
UNIT V	
November 14	Module 13- Innate Immunity
November 21	Module 14- Adaptive Immunity
November 28	Module 15- Laboratory Diagnosis of Infections

Communication: The preferred method of communication for this course is via email. Dr. Rosario can be reached at srosario32@valenciacollege.edu.

Email etiquette

1. Subject line: Include the course name and a specific subject heading for your email (example: MCB 2010C- Question about Exam I)
2. Greeting: You should address your professor as Dr. Rosario
3. Tone and style: Use a tone and language appropriate for professional communication. Emails written in incomplete sentences, without punctuation or in text shorthand (*i.e.* RU giving a test 2day? TTFN, ROLF LMAO) will not receive a response.
4. Content: Before sending an email, please review the syllabus, course website and/or textbook. Be thoughtful in your email. Many questions can be saved until the next class period. If you need in-depth help on a specific task or need general study guidance, please come to my office during office hours or make an appointment to meet with me. I am happy to help.
5. Signature: Please sign with your full name, course name and lecture time.
6. Response: Typically, emails will be responded to within 24hrs of receipt. Please avoid sending multiple emails within a single day.
7. Thank you for reading the syllabus in detail. For 5 points of extra credit on the midterm, send Dr. Rosario an email following the guidelines listed above. In the email you should attach a picture of an adorable baby animal. This task must be completed by Monday, August 29th to receive the extra credit.

Valencia College is committed to providing each student a quality educational experience. Faculty members have set high standards of instruction for themselves and for you. If you have a problem in a class, your first step is to talk to your instructor. If you are still dissatisfied, you may talk with the academic dean of the division for your class. We will work together to resolve any issues that arise.

Online etiquette

In order to maintain a positive online environment, we all need to follow the guidelines summarized below.

All students are expected to:

- respect the privacy of other students
- express differences of opinion in a polite and rational way
- maintain an environment of constructive criticism when commenting on the work of other students
- avoid bringing up irrelevant topics when involved in group discussions or other collaborative activities

The following list summarizes the kind of behavior that is not acceptable. Each item listed below is grounds for removal from the class.

Students should not:

- Show disrespect for the instructor or for other students in the class
- Send messages or comments that are threatening, harassing, or offensive
- Use inappropriate or offensive language
- Convey a hostile or confrontational tone when communicating or working collaboratively with other students
- USE ALL UPPERCASE IN THEIR MESSAGES -- THIS IS THE EQUIVALENT OF SHOUTING!!!

Students with Disabilities: 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 the professor, preferably during the first two weeks of the semester. The OSD (West Campus SSB 102, ext. 1523) determines accommodations based on appropriate documentation of disabilities.

Academic Integrity: All forms of academic dishonesty are prohibited at Valencia College. Academic dishonesty includes, but is not limited to, plagiarism, cheating, furnishing false information, forgery, alteration or misuse of documents, misconduct during a test situation, and misuse of identification with intent to defraud or deceive.

All work submitted by students is expected to be the result of the student's individual thoughts, research and self-expression. Whenever a student uses ideas, wording or organization from another source, the source shall be appropriately acknowledged.

Students shall take special notice that the assignment of course grades is the responsibility of the student's individual professor. When the professor has reason to believe that an act of academic dishonesty has occurred, and before sanctions are imposed, the student shall be given informal notice and an opportunity to be heard by the professor. Any student determined by the professor to have been guilty of engaging in an act of academic dishonesty shall be liable to a range of academic penalties as determined by the professor which will include, but not be limited to, one or more of the following: loss of credit for an assignment, examination or project; a reduction in the course grade; or a grade of "F" in the course. At the option of the professor, the campus president may be furnished with written notification of the occurrence and the action taken. If such written notice is given, a copy shall be provided to the student.

Students guilty of engaging in a gross or flagrant act of academic dishonesty or repeated instances of academic dishonesty shall also be subject to administrative and/or disciplinary penalties which may include warning, probation, suspension and/or expulsion from the college.

Course Withdrawal: Per Valencia Policy 4-07 (Academic Progress, Course Attendance and Grades, and Withdrawals), a student who withdraws from class before the withdrawal deadline of **October 28th at 11:59pm** will receive a grade of "W". A student is not permitted to withdraw after the withdrawal deadline. A faculty member MAY withdraw a student up to the beginning of the final exam period for violation of the class attendance policy. A student who is withdrawn by faculty for violation of the class attendance policy will receive a grade of "W". 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."

Students on financial aid should consult an advisor or a counselor before withdrawing from a course; there may be financial aid implications to the student which he or she must know about to make an informed decision before withdrawing from a course. Students with some scholarships who withdraw or are withdrawn from a class must pay the college for the cost of the class. Other scholarship sponsors may also require repayment.

Before you withdraw from this course, you should be aware that course withdrawals:

- *Will increase the cost of your education*
- *May affect your financial aid status*
- *May affect your transfer grade point average*
- *May result in your having to pay the full cost of instruction fee to retake the course*
- *May affect your anticipated graduation date*
- *May result in your being denied access to limited access programs*

- May affect your eligibility for the Honors Program
- May affect your immigration status if you are attending Valencia on a nonimmigrant visa
- Will result in your required repayment of course fees paid by a Bright Futures scholarship.

For a complete policy and procedure overview on Valencia Policy 4-07, please visit:

<https://catalog.valenciacollege.edu/academicpoliciesprocedures/courseattemptscoursewithdrawal/>

Faculty Withdrawal Policy: Faculty may withdraw a student up to the beginning of the final exam period for violation of class and/or Valencia policies. Your instructor's withdrawal deadline for Fall is December 4th. Faculty withdrawals are entirely at the discretion of the instructor. Your instructor will attempt to contact you. If you do not respond within 48 hours, you are leaving the decision up to her.

Valencia Policy 4-07

Students may be withdrawn by faculty for attendance violations, failure to complete major course components (greater than 100 points), or major behavioral violations such as academic dishonesty. Other situations not listed here may also warrant a withdrawal. A student who is withdrawn by faculty will receive a grade of W. 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. Students who withdraw may be required to pay back financial aid.

Satisfactory Academic Progress: In order to academically maintain financial aid, students must meet all of the following requirements:

- Complete 67% of all classes attempted, and
- Maintain a Valencia GPA of 2.0 or higher, and
- Maintain an overall GPA of 2.0 or higher, and
- Complete degree within the 150% timeframe

Detailed information about maintaining satisfactory academic progress (SAP) can be found at:

<https://valenciacollege.edu/finaid/satisfactory-progress.php>

Learning Support Services:

Learning Support Services provides students with academic support through distance tutoring, face to face tutoring at the campuses, writing consultations, library services, and resources. Tutoring is offered in most academic disciplines including math, science, foreign languages, English for academic purposes (EAP), computer programming and writing assistance for any course. Assistance with library research can be accessed online through Atlas or the tutoring LibGuide. For more information on how to access tutoring and library research assistance, please visit the college-wide Learning Support Services LibGuide at:

<https://libguides.valenciacollege.edu/distancetutoring>.

West Campus Tutoring Center

In-Person Operating Hours

- Monday to Thursday: 8am to 7pm
- Friday: 8am to 5pm
- Saturday: 10am to 4pm
- Sunday: Closed

Virtual Services will be available through [Distance Tutoring](#)

- Monday – Friday 10:00 am – 9:00 pm
- Saturday - Sunday 11:00 am – 7:00 pm

In-Person Services	Virtual Services
Walk-In Tutoring	Distance Tutoring Online Tutoring 24/7 – Brainfuse
Writing Center Consultations	Online Essay Center
Embedded Tutoring Programs	Embedded Tutoring Programs
Technology Check-out (calculators, iPads and laptops, etc.)	Student tech support
Student printing	
Student tech support	
Laptop cart request	

Brainfuse Online Tutoring: Brainfuse is our 24/7 online tutoring and learning hub, which is available to all of Valencia’s students. This service is best used as a back-up to Valencia’s Distance Tutoring service, not as a replacement. Brainfuse is accessible through Canvas or by visiting <https://libguides.valenciacollege.edu/c.php?g=1014597&p=7351876>

BayCare Services: BayCare is a private and confidential counseling service contracted by Valencia College that provides short-term assistance to credit students who need to resolve problems that are affecting their college performance. Examples might include stress, relationship/family issues, alcohol/drug problems, eating disorders, depression, and gender issues. If you are experiencing any of these issues, call 1-800-878-5470 to speak to a professional counselor. For more information, log into Atlas, click on the “Students” tab, and click on “BayCare Health System,” located under “Health and Wellness.”

Campus Safety: We want to reassure you that our security officers are here around the clock to ensure the safety and security of the campus community. It’s important to remain alert and aware of your surroundings, especially during the early morning or evening hours. Remember that you can always call security for an escort if you feel uncomfortable walking alone on campus. White security phones can also be found in many of our buildings; simply pick up the phone and security will answer.

Finally, report any suspicious persons to West Campus Security at 407-582-1000, 407-582-1030 (after-hours number) or by using the yellow emergency call boxes located on light poles in the parking lots and along walkways.

Title IX

Valencia College strives to be a place free from all forms of discrimination. Title IX, a federal law, and Valencia College Policy protect students from discrimination based upon sex including protections against sexual violence, domestic violence, and stalking. This also includes protections for students who are pregnant or may become pregnant. If you experience sexual violence, domestic violence or stalking and would like assistance there are several options available to you. Valencia collaborates with the Victim Service Center of Central Florida, which is a confidential resource available 24/7. They can be reached by calling 407-497-6701. If you would like assistance on campus, you can go to valenciacollege.edu/eo or contact Valencia College’s Title IX Coordinator, Ryan Kane, by emailing rkane8@valenciacollege.edu. If you would like to report to law enforcement, you may visit Campus Security or call 911.

Please note that there are no confidential resources on campus. As your professor, I am required to report any information mentioned in this statement to the appropriate campus resources. This

will include your name, and detailed information shared with me. We take privacy very seriously at the College and only those who have a legitimate need to know the information will be provided with this information.

If you have more questions about Title IX or the College's response, please visit <http://valenciacollege.edu/eo>

Weather Emergencies: In the case of weather emergencies, you can find out about school closings by signing up to update your information for Valencia Alerts.

The course outline and syllabus are subject to change as needed; changes will be announced via Canvas in a timely manner, when necessary. Your continued participation in this course after the drop-add deadline period constitutes an agreement with and an acceptance of the conditions presented in this syllabus.