



Medical Microbiology (Proc 24)

PRE-TEST/POST-TEST TEKS BLUEPRINT

Pre-Test/Post-Test Development Overview

TEKS Addressed Selection Process

The Texas Essential Knowledge & Skills (TEKS) included in the course pre-test and post-test were selected for their direct relevance to the course content. This selection process was guided by the goal of assessing learners' understanding of specific topics and skills that are integral to the course. As a result, TEKS related to general employability skills or broader topics were often excluded. This focus ensures that the assessments accurately measure students' mastery of the subject matter, allowing educators to gain a clear insight into areas where students excel or may need additional support. By concentrating on content-specific TEKS, the tests provide a more precise evaluation of the students' knowledge and understanding of the core material.

Test Question Development Process

The questions created for the pre-test and post-test were designed using psychometric principles to ensure they are of high quality and fairness. This approach helps to accurately assess student understanding. These principles guide the development of questions to be reliable, valid, and free from bias, ensuring that they effectively measure the knowledge and skills the students are expected to acquire in the course.

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Knowledge & Skills Statement	Student Expectation	ICEV Lesson Title
(6) The student examines the field of microbiology in relation to medical care. The student is expected to:	(A) examine the historical development of microbiology as it relates to health care of an individual in modern medicine; and	Microbiology Milestones
(6) The student examines the field of microbiology in relation to medical care. The student is expected to:	(B) compare the roles, functions, and responsibilities of agencies governing infectious disease control.	Infectious Disease Control
(7) The student is expected to perform and analyze results in the microbiology laboratory. The student is expected to:	(A) classify microorganisms using a dichotomous key;	Microbe Morphology
(7) The student is expected to perform and analyze results in the microbiology laboratory. The student is expected to:	(B) prepare slides and discuss the differences between Gram-positive and Gram-negative bacteria such as the bacterial cell wall and the use of oxygen;	Gram Staining
(7) The student is expected to perform and analyze results in the microbiology laboratory. The student is expected to:	(C) identify chemical processes such as enzyme catalyst and osmotic potential of microorganisms;	Biochemical Testing Osmotic Pressure
(7) The student is expected to perform and analyze results in the microbiology laboratory. The student is expected to:	(D) identify and discuss technologies used in a laboratory setting such as polymerase chain reaction (PCR), serology, enzyme-linked immunoassay (ELISA), and electrophoresis;	Microbiology Lab Techniques
(7) The student is expected to perform and analyze results in the microbiology laboratory. The student is expected to:	(E) prepare plates or active mediums to differentiate the factors required for microbial reproduction and growth;	Culturing Techniques
(7) The student is expected to perform and analyze results in the microbiology laboratory. The student is expected to:	(F) identify the normal flora microorganisms of the human body	Introduction to Microbes and Pathogens
(7) The student is expected to perform and analyze results in the microbiology laboratory. The student is expected to:	(G) identify and differentiate between various pathogens, including opportunistic pathogens, hospital-acquired infections, community acquired infections, and colonizing microorganisms;	Introduction to Microbes and Pathogens
(7) The student is expected to perform and analyze results in the microbiology laboratory. The student is expected to:	(H) isolate colonies and describe the morphology of microorganisms; and	Microbe Morphology Culturing Techniques
(7) The student is expected to perform and analyze results in the microbiology laboratory. The student is expected to:	(I) interpret and explain the role of the culture and sensitivity report provided to the clinician.	Evaluating Antimicrobial Agents
(8) The student examines the role of microorganisms in infectious diseases. The student is expected to:	(A) outline and explain the infectious disease process, including how pathogenic microorganisms affect human body systems;	Microbes and Human Health
(8) The student examines the role of microorganisms in infectious diseases. The student is expected to:	(B) categorize diseases caused by bacteria, including Rickettsia, fungi, viruses, protozoa, arthropods, and helminths;	Infectious Disease
(8) The student examines the role of microorganisms in infectious diseases. The student is expected to:	(C) explain and interpret the body's immune responses and defenses against infection;	Microbes and Human Health
(8) The student examines the role of microorganisms in infectious diseases. The student is expected to:	(D) prepare a bacterial colony and evaluate the effects of anti-microbial agents such as narrow and broad-spectrum antibiotics;	Evaluating Antimicrobial Agents
(8) The student examines the role of microorganisms in infectious diseases. The student is expected to:	(E) examine the environmental and social causes of the emergence and reemergence of diseases such as corona viruses, Ebola, malaria, tuberculosis, and polio;	Spread of Infectious Disease
(8) The student examines the role of microorganisms in infectious diseases. The student is expected to:	(F) research and discuss drug aureus-resistant microorganisms, including carbapenem-resistant Enterobacteriaceae, methicillin-resistant Staphylococcus aureus, vancomycin-intermediate/resistant Staphylococci, vancomycin resistant enterococci, and emergent antibiotic-resistant superbugs; and	Antimicrobial Resistance
(8) The student examines the role of microorganisms in infectious diseases. The student is expected to:	(G) outline the role of governing agencies in monitoring and establishing guidelines based on the spread of infectious diseases.	Infectious Disease Control
(9) The student recognizes the importance of maintaining a safe environment and eliminating hazardous situations. The student is expected to:	(A) identify and apply standard laboratory precautions;	Lab Safety: Medical Microbiology
(9) The student recognizes the importance of maintaining a safe environment and eliminating hazardous situations. The student is expected to:	(A) identify and apply standard laboratory precautions;	Lab Safety: Medical Microbiology

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Knowledge & Skills Statement	Student Expectation	iCEV Lesson Title
(9) The student recognizes the importance of maintaining a safe environment and eliminating hazardous situations. The student is expected to:	(A) identify and apply standard laboratory precautions;	Lab Safety: Medical Microbiology
(9) The student recognizes the importance of maintaining a safe environment and eliminating hazardous situations. The student is expected to:	(B) identify and apply microbiological safety practices in accordance with industry standards, including the proper handling, disinfection, and disposal of biological waste and maintenance of containment levels;	Lab Safety: Medical Microbiology
(9) The student recognizes the importance of maintaining a safe environment and eliminating hazardous situations. The student is expected to:	(C) identify and apply appropriate personal protection equipment (PPE) and transmission-based precautions, including precautions against droplet, contact, and airborne transmission;	Lab Safety: Medical Microbiology
(9) The student recognizes the importance of maintaining a safe environment and eliminating hazardous situations. The student is expected to:	(D) sterilize laboratory and medical equipment and instruments in accordance with industry standards; and	Decontamination
(9) The student recognizes the importance of maintaining a safe environment and eliminating hazardous situations. The student is expected to:	(E) define and select different mechanisms of decontamination such as antiseptics, disinfection, and sterilization.	Decontamination