

**Pathogens Unit Objectives:** By the end of this unit, students will be able to...

- Explain the most likely method by which a pathogen gains entrance into its host.
- Explain how a pathogen can become established by focusing on a specific kind of tissue.
- Summarize the main causes of bodily damage from an infection by a pathogen.
- Identify and categorize each of the following by the unique characteristics and identifying traits:  
a. Bacteria b. Viruses c. Fungi d. Protozoa e. Helminth
- Define a prion and explain the characteristics that make this class of pathogens unique.
- Compare and contrast prokaryotic and eukaryotic organisms.
- Summarize how to classify bacteria, including by shape, aerobic/anaerobic, and by gram stain.
- Compare and contrast the differences between gram negative and gram positive bacteria, particularly in regards to cell membranes and cell walls, susceptibility to antibiotics, and endotoxins vs. exotoxins.
- Compare and contrast the properties of endotoxins vs. those of exotoxins.
- Summarize the properties of peptidoglycan and relate how these properties affect the susceptibility of some bacteria to antibiotics.
- Summarize the properties and characteristics of the membrane outside of the cell wall of some bacteria in regards to susceptibility to antibiotics, infection of a host, and resistance to host defenses.
- Summarize how a bacterial infection can lead to the death of a host via sepsis and septic shock.
- Explain why a virus is not considered to be a living species.
- Summarize how viral reproduction occurs.
- Compare and contrast a retrovirus to a standard virus.
- Identify the kingdom of life in which fungi are classified.
- Summarize the key traits of protozoa.
- Explain how the symptoms diseases caused by helminths differ from many other pathogens.
- Outline the method by which a prion causes a disease and identify practices that increase the likelihood of a prion infection.
- Describe the existing treatments and/or cures for a prion disease.