

# BIOL& 260 : Microbiology with Lab

**Credits** 5

**Quarter Offered** Spring

Introduction to bacteria, viruses, and other microorganisms. Includes microbial structure, metabolism, genetics, ecology, technological applications, microbial diseases of humans, immunology, public health, and medical control strategies. This class may include students from multiple sections. (Natural Sciences with Lab, Elective)

**Prerequisites**

Eligibility for both [ENGL& 101](#) and [MATH 90/91](#); 2.0 or higher in [BIOL& 160](#) or [BIOL& 222](#)

**Course Outcomes**

Discuss the structural features of bacteria, viruses, and prions, and how those features are related to mechanisms of infection.

Discuss how strategies such as disinfection and pasteurization are used to control microbial growth.

Discuss how mutations coupled with rapid growth support the emergence of multidrug-resistant pathogens.

Explain how recombinant DNA technology can be used to produce large quantities of human proteins in bacteria for further study.

Discuss the importance of arthropod vectors (mosquitoes, e.g.) in transmission of malaria and other diseases.

Explain the fundamental differences between the innate and adaptive immune systems and the advantages/disadvantages of each.

Discuss the general mechanisms by which pathogens cause damage to the host, and be able to explain the difference between exotoxins and endotoxins.

Explain how immunoassays are used to detect the presence of particular pathogens, and why it is useful to know the identity of the infectious microbe.

Discuss the principles of transmission of disease including the importance of portals of exit, portals of entry, and reservoirs of infection.

Demonstrate the ability to use the CDC website, including the Morbidity and Mortality Weekly Report (MMWR), to learn about infectious diseases.