

**CHAPTER 1**  
**WHAT IS MICROBIOLOGY AND WHY DOES IT MATTER?**

---

Microbiology: A Clinical Approach (2nd Edition) © Garland Science

---

---

---

---

---

---

---

---

**WHY IS IT IMPORTANT?**

- ◆ Microbiology has relevance to everyday life
- ◆ We do not live in a sterile environment; therefore we interact with microbes all the time
- ◆ Infectious diseases are a leading health-related issue, especially in societies with an increasing elderly population, and developing countries

Microbiology: A Clinical Approach (2nd Edition) © Garland Science

---

---

---

---

---

---

---

---

**WHY IS IT IMPORTANT?**

- ◆ Travel allows the movement of infectious diseases around the world in a relatively short time
- ◆ When we understand how microbial pathogens cause disease, we are better able to treat and defeat these infections
- ◆ There are thousands of species of bacteria, viruses, fungi, and parasites, but only a small fraction are involved in disease

Microbiology: A Clinical Approach (2nd Edition) © Garland Science

---

---

---

---

---

---

---

---

### **PATHOGENICITY AND VIRULENCE**

- ◆ The potential to cause disease is referred to as pathogenicity, and pathogens can be categorized on the basis of their degree of virulence
- ◆ These pathogens possess virulence factors that allow them to persist in the host, evade host defenses, and cause disease
- ◆ Part of the disease process is based on the host's ability to defend itself against infection by using the innate and adaptive immune responses

Microbiology: A Clinical Approach (2nd Edition) © Garland Science

---

---

---

---

---

---

---

---

### **INFECTION REQUIREMENTS**

- ◆ Pathogens must accomplish five tasks to be successful in causing disease. They must get in, stay in, defeat the host defenses, damage the host, and be transmissible

Microbiology: A Clinical Approach (2nd Edition) © Garland Science

---

---

---

---

---

---

---

---

### **DISEASE PREVENTION**

- ◆ The best treatment of disease is prevention
- ◆ Prevention involves public health measures and immunization

Microbiology: A Clinical Approach (2nd Edition) © Garland Science

---

---

---

---

---

---

---

---