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Autore	Firshein William
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Nota di contenuto	Cover; Contents; Preface; Acknowledgments; 1. Introduction to the Infectious Microbe; A. The Scope of Microbial Life and Infectious Diseases; B. What Is a Pathogen?; C. The Relationship between a Pathogen and the Host It Infects Is Complex and Varied; D. Susceptibility and Virulence Factors Are Closely Related; E. Major Groups of Pathogens Are Found throughout the Microbial World; 2. Fundamental Concepts of Biology and Chemistry Help Understand Pathogenicity; A. Genetics: The Nature of the Gene and Its Chemical Structure (DNA) B. Metabolism Consists of Chemical Reactions, without Which Life Would Not ExistC. Biological Catalysts (Enzymes) Mediate Every Chemical Reaction in the Cell; D. Genes Control the Synthesis and Expression of Enzymes (Which Are Proteins) and Hence Control the Functioning of the Cell; E. The Mechanism of Protein Synthesis Involves a Complex Series of Metabolic Reactions and Cellular Organelles, Starting with DNA, a Related Macromolecule (RNA), and the Ribosome (the Protein-Synthesizing Factory); F. Gene Expression is Tightly Regulated to Economize and Preserve Cell Integrity G. Genetic Modifications in the Process of Gene Expression in Microbes Are Varied and Complex. They Include Mutations, Transfer Transformation (Recombination) of Genes from One Cell to Another,

and Many Other Variations of These EventsH. Modern Technologies; 3. History of Microbiology; A. Voices in the Wilderness; B. The Golden Age and Modern Era; 4. Emerging and Reemerging Diseases; A. Introduction; B. Definitions; C. Examples of Each; D. Role of Antibiotics; 5. Case Histories; A. Introduction: Why Are the Following Examples Chosen?; B. HIV-AIDS: The Plague That Threatens Modern Society 1) Origins2) Characteristics; 3) Versatility; 4) Structure of Genome; 5) Treatment; 6) Course of Infection; 7) Conclusions; C. Tuberculosis: The White Plague, Ancient, But Still Lethal; 1) Introduction; 2) Description; 3) Pathogenicity; 4) Testing and Virulence Factors; 5) Treatment; D. Streptococci and Staphylococci: More Intimacy Than We Desire; 1) Introduction; 2) General Descriptions; 3) Staphylococci; 4) Toxins; 5) Staph Diseases; 6) Treatment; 7) Streptococci; 8) Toxins; 9) Other Streptococci; E. Ulcers and Helicobacter: The Uncommon Pathogen; 1) Introduction; 2) The Organism
3) The Disease4) Pathogenicity; 5) Toxins; 6) Treatment; F. Cholera: A Pretty Nasty Beast; 1) Introduction; 2) The Organism; 3) Pathogenicity; 4) Diagnosis, Prevention, and Treatment of Cholera; 5) The Agony of Haiti; 6) Conclusions; G. Influenza: Bird Flu, Swine Flu, and All That Jazz; 1) Introduction; 2) The Virus and Pathogenicity; 3) Spread, Prevention, and Treatment; 4) Conclusion; 6. Biofilms: City of Microbes and their Role in Pathogenicity; A. Introduction; B. Biofilms and Infectious Diseases; 7. Biological Terrorism: Myths and Realities; A. Introduction; B. Historical Perspective
C. Bioterrorism Today: State of the Art and Preparedness

Sommario/riassunto

Of the innumerable ways that science and humanity interact, few are as central or as significant as our interaction with microorganisms. Though these single-celled and ""complete"" living organisms have major impacts on many chemical and ecological processes, they are most often recognized for their ability to cause serious and sometimes fatal diseases. From diseases caused by bacteria, like pneumonia, tuberculosis, anthrax, meningitis, typhoid, and bubonic plague, to diseases caused by viruses, like HIV, polio, yellow fever, hepatitis, and influenza, humanity has struggled to cope with the ra