GLOBAL CHANGES THROUGHOUT THE SIXTH EDITION:
- Many art pieces have been turned into infographics, a form of data visualization 21st-century learners are comfortable with.
- Language is simplified throughout the book. Sentences are shortened and general vocabulary is updated.
- Disease Tables now indicate the taxonomy of each microorganism. The end-of-chapter materials now include the SmartGrid-21 questions probing chapter content with respect to the ASM curriculum concepts and Bloom's taxonomy. Also, each chapter contains a simple guide for students to engage in face-to-face or virtual group study. This is called Study Smarter: Better Together.
- In all disease tables, each organism is denoted as "B, V, F, P, or H"-indicating bacterium, virus, etc. When bacterial, the table also indicates G+ or G-.

SEE LIST OF CHANGES ATTACHED.
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Major chapter updates or new material. Note: Each chapter contains between 400 and 700 edits, ranging from minor grammatical improvements to major insertions of content. Listed here are just the highlights.

Chapter 1: The Main Themes of Microbiology
New infographics for better understanding of cell types
More time on scientific methods
Updates on evolutionary history of cell line
Taxonomy and classification discussions clarified and simplified

Chapter 2: The Chemistry of Biology
New elements named
Case study on why saline might not be ideal for hydration (hint: it’s the chloride!)

Chapter 3: Tools of the Laboratory
In this chapter, there is typically a lot of terminology that is used to describe phenomena, yet the terms themselves are not defined (such as “what is growth?”); rewritten with an eye to what the students do not yet know
New infographic to illustrate the “Five I’s”

Chapter 4: Bacteria and Archaea
New infographics that make different categories of bacteria more visual

Chapter 5: Eukaryotic Cells and Microorganisms
Updated origins of eukaryotes narrative
Highlighted increase in fungal opportunistic diseases
Neglected parasitic infections (NPIs)

Chapter 6: Viruses and Prions
Discussion of viruses in the microbiome
New diseases caused by prions

Chapter 7: Microbial Nutrition, and Growth
Improved the presentation of serial dilution
Added origin of oxygen

Chapter 8: Microbial Metabolism
Expands on electricity-eating bacteria

Chapter 9: Microbial Genetics
Epigenetics and their connection with small RNAs

Chapter 10: Genetic Analysis and Genetic Engineering
Pangenomes introduced
CRISPR and gene drives updated

Chapter 11: Physical and Chemical Control of Microbes
Added the banning by the FDA of triclosan and other chemicals in consumer products

Chapter 12: Antimicrobial Treatment
The influence of antibiotics on the microbiome, throughout the lifespan
New approaches to antimicrobials

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Chapter 13: Microbe-Human Interactions: Health and Disease
Added the need to negotiate the host microbiome as one of the steps required for microbes to cause disease
Several new figures

Chapter 14: Host Defenses I: Overview and Nonspecific Defenses
Changed overall organization to more logical sequence

Chapter 15: Host Defenses II: Specific Immunity and Immunization
New infographic about the properties of specific immunity
Information about vaccines for noninfectious conditions and CAR-T treatments

Chapter 16: Disorders in Immunity
Updated discussion of causes of autoimmunity
Several new infographics
New information on asthma incidence

Chapter 17: Diagnosing Infections
Point-of-care diagnostics
More emphasis on genetic testing, qPCR, pan bacterial qPCR
New infographics summarize the testing procedures for phenotypic, genotypic, and immunological methods in a visually consistent manner

Chapter 18: Infectious Diseases Affecting the Skin and Eyes
Not new, but important: Retained and updated opening case study about measles transmission in an airport

Chapter 19: Infectious Diseases Affecting the Nervous System
Zika virus disease added
New prion described

Chapter 20: Infectious Diseases Affecting the Cardiovascular and Lymphatic Systems
Updated the section on Rocky Mountain spotted fever to include all spotted fever rickettsias and noted their dramatic increase in the United States
Discussion of CRISPR techniques for making mosquito populations sterile
New figure detailing who gets AIDS in the United States

Chapter 21: Infectious Diseases Affecting the Respiratory System
Updated differential diagnoses for pharyngitis and pneumonia

Chapter 22: Infectious Diseases Affecting the Gastrointestinal Tract
Updated the C. diff genus to Clostridioides
Updated foodborne disease trends

Chapter 23: Infectious Diseases Affecting the Genitourinary System
More discussion of catheter-associated urinary tract infections
Updated discussion on role of vaginal microbiome in high infant mortality rates
Updated STI statistics

Chapter 24: Microbes and the Environment
Increased emphasis on climate change

Chapter 25: Applied Microbiology and Food and Water Safety
Clearer illustration of water purification

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