

Environmental Microbiology for Engineers



The textbook **Environmental Microbiology for Engineers** enables engineering students to understand how microbiology can be applied to environmental research and practical applications. Written specifically for senior undergraduate to graduate level civil and environmental engineering students, the textbook encompasses both fundamental and applied principles and covers topics such as the microbiology of water, wastewater, soil, and air biotreatment systems used in environmental engineering. It also covers civil engineering topics such as biocementation, biocorrosion, biofouling and biodeterioration of materials. Suitable for environmental engineers with little to no biology training, this book provides a thoroughly up-to-date introduction to current trends in environmental microbiology and engineering. Microbial classification is represented as a periodic table with theoretical connections between all prokaryotic groups and highlighting their environmental applications. The textbook includes quizzes for each chapter, tutorials and exam questions. A separate solutions manual is available with qualifying course adoption.

Combining microbiological knowledge and environmental biotechnology principles in a readable fashion, the book includes topics such as

- Structures and functions of microbial cell and cell aggregates
- Applied microbial genetics and molecular biology
- Diversity and function of microorganisms in environmental engineering systems
- Environmental bioengineering processes
- Microbiological monitoring of environmental engineering systems
- Microbiology of water and wastewater treatment
- Biocementation and bioclogging of soil
- Biocorrosion of constructions
- Biodeterioration of materials
- Biopollution of indoor environments
- Bioremediation and biotransformation of solid waste and soil
- Ancillary instructional material: Quiz and Exam Bank

As an instructor and an active participant in the environmental and civil engineering community, the author has recognized the need for field-specific microbiology instructional material, and has constructed a concise, relevant text for both students and professionals.



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6000 Broken Sound Parkway, NW
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270 Madison Avenue
New York, NY 10016
2 Park Square, Milton Park
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