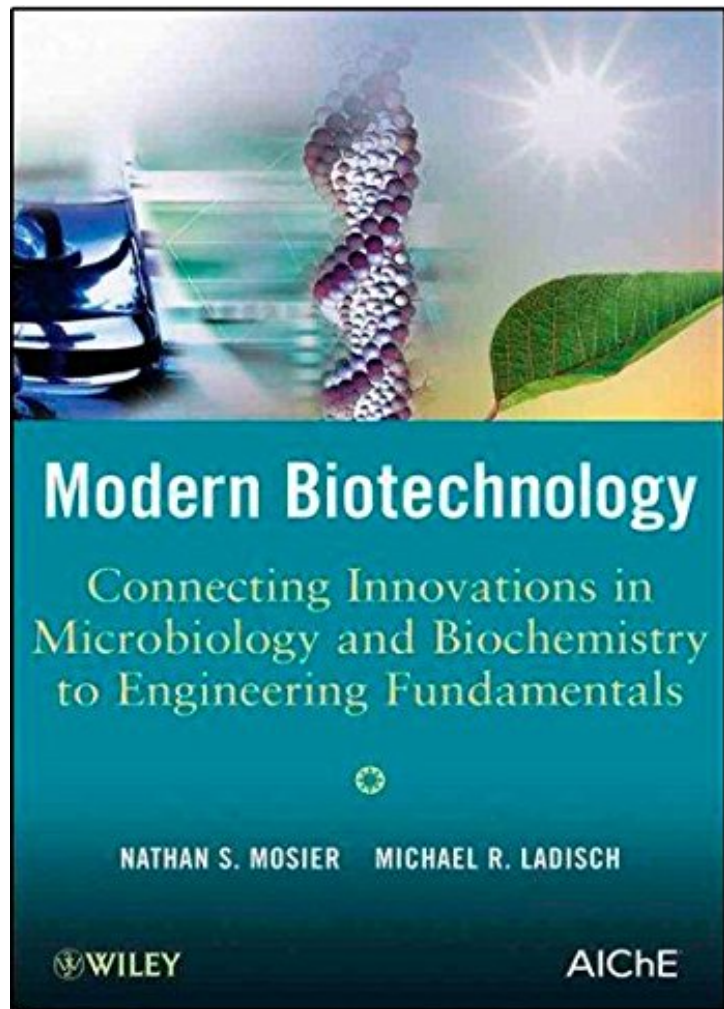


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Modern Biotechnology: Connecting Innovations in Microbiology and Biochemistry to Engineering Fundamentals

Nathan S. Mosier, Michael R. Ladisch
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Biotechnology introduces students in science, engineering, or technology to the basics of genetic engineering, recombinant organisms, wild-type fermentations, metabolic engineering and microorganisms for the production of small molecule bioproducts. The text includes a brief historical perspective and economic rationale on the impact of regulation on biotechnology production, as well as chapters on biotechnology in relation to metabolic pathways and microbial fermentations, enzymes and enzyme kinetics, metabolism, biological energetics, metabolic pathways, nucleic acids, genetic engineering, recombinant organisms and the production of monoclonal antibodies.

"Regardless, if one is specifically interested in quantitative microbial biotechnology, then this is a great, concise, and informative Textbook." (The Quarterly of Biology, 1 December 2011) From the Back Cover A unique resource for the next generation of biotech innovators Enabling everything from the deciphering of the human genome to environmentally friendly biofuels to lifesaving new pharmaceuticals, biotechnology has blossomed as an area of discovery and opportunity. Modern Biotechnology provides a much-needed introduction connecting the latest innovations in this area to key engineering fundamentals. With an unmatched level of coverage, this unique resource prepares a wide range of readers for the practical application of biotechnology in biopharmaceuticals, biofuels, and other bioproducts. Organized into fourteen sections, reflecting a typical semester course, Modern Biotechnology covers such key topics as: Metabolic engineering Enzymes and enzyme kinetics Biocatalysts and other new bioproducts Cell fusion Genetic engineering, DNA, RNA, and genes Genomes and genomics Production of biopharmaceuticals Fermentation modeling and process analysis Taking a practical, applications-based approach, the text presents discussions of important fundamentals in biology, biochemistry, and engineering with relevant case studies showing technology applications and manufacturing scale-up. Written for today's wider, more interdisciplinary readership, Modern Biotechnology offers a solid intellectual foundation for students and professionals entering the modern biotechnology industry. About the Author Nathan S. Mosier is an Associate Professor in the Department of Agricultural and Biological Engineering and the Laboratory of Renewable Resources Engineering at Purdue University. Mosier was also an NSF IGERT PhD Fellow from 2000-2002 at the Innovation Realization Laboratory in Krannert School of Management, and has authored case studies based on commercialization experiences for use in entrepreneurship and/or technology commercialization business school curricula. Michael R. Ladisch, a member of the National Academy of Engineering, is Distinguished Professor in the Department of Agricultural and Biological Engineering at the Weldon School of Biomedical Engineering, Director of the Laboratory of Renewable Resources Engineering at Purdue University, and Chief Technology Officer at Mascoma Corporation, a cellulosic biofuels company. He is coeditor of several books on biotechnology, including *Harnessing Biotechnology for the 21st Century* and *Protein Purification*, and is the author of Wiley's *Bioseparations Engineering* text.