

The background of the entire page is a photograph of several jellyfish floating in dark water. The jellyfish are illuminated from within, giving them a bright, ethereal glow. They have a translucent, bell-like shape with visible internal structures and long, thin tentacles hanging from the bottom. The lighting is soft, creating a serene and mysterious atmosphere.

Life & Earth Sciences

May to August 2023

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The Science of Vegan Food, Volume 2

M. Rafiqul Islam

Wiley-Scrivener
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350 Pages
Technology & Engineering /
Agriculture

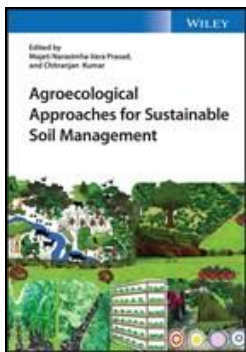


Zero-Waste Agrometeorology Toward Achieving Total Sustainability, Volume 1

M. Rafiqul Islam

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496 Pages
Technology & Engineering /
Agriculture

Agroecological Approaches for Sustainable Soil Management

Majeti Narasimha Vara Prasad, Chitrangan Kumar

Summary

Enables readers to strengthen existing agricultural strategies to sustainably solve contemporary problems like food supply chain gaps and food scarcity

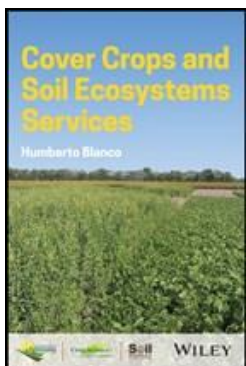
Agroecological Approaches for Sustainable Soil Management explains strategies to check the deterioration of soil quality, irrigation water quality, reuse of wastewaters in agriculture after treatment, organic fertigation, and corporate fertigation, to transform current agriculture into sustainable agriculture, and demonstrates cost effective technologies for sustainable development of site-specific ecosystems. Techniques to eradicate malnutrition, such as enhanced biofortification, are also covered.

Sample topics covered in *Agroecological Approaches for Sustainable Soil Management* include:

- Foremost developments in the restoration and utilization of degraded lands through organic farming, precision agriculture, climate-resilient fodder/forage cultivation, and livestock management
- Promotion of agro-forestry-based apiculture, silviculture, and sericulture, and corporate fertigation, and reclaiming urban brownfields & industrial areas
- Development of diverse products, including biofuel, fiber, fodder, timber, and herbal products leading to th...

Contributor Bio

Majeti Narasimha Vara Prasad is an Emeritus Professor, School of Life Sciences, University of Hyderabad, India. He has published over 219 papers and edited 34 books. He received a Doctorate in Botany from Lucknow University, India in 1979. Based on an independent study by Stanford University scientists, he figured in the top 2% of scientists from India consecutively in 2020, 2021 and 2022, ranked number 1 in Environmental Sciences, India in 2020 and 2021. Recipient of Pitamber Pant National Environment Fellowship for the year 2007, awarded by the Ministry of Environment, Forests and Climate Change, Government of India; Excellent Scholar Award of the XIX Int. Bot. Congress, July 23-29, 2017, Shenzhen, China.



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Technology & Engineering /
Agriculture
Series: ASA, CSSA, and
SSSA Books

Cover Crops and Soil Ecosystems Services

Blanco

Summary

A comprehensive resource on cover crops and their role in soil ecosystems

Cover crops are crops planted in order to protect, maintain, and enrich the soil rather than for harvest and subsequent use. They can have an enormous effect on agricultural outcomes, preventing soil erosion, restoring vital soil nutrients, and more. The successful maintenance and use of cover crops is therefore critical to agriculture in its modern form, allowing land to be used more consistently and sustainably with superior yields.

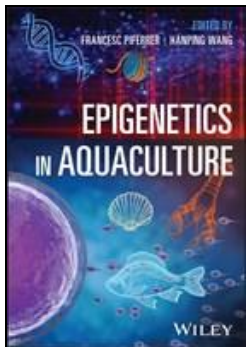
Cover Crops and Soil Ecosystem Services provides a heavily researched and highly readable introduction to cover crops and their role in soil ecosystems. It ranges from detailed discussion of cover crop biomass production to thorough treatment of soil ecosystems and their vulnerabilities. The result is an essential guide to a critical area of agricultural science.

Cover Crops and Soil Ecosystem Services readers will also find:

- Detailed treatment of cover crop biomass production, soil properties, different forms of soil erosion, and more
- Discussion of emerging issues including climate change and the economics of cover crop farming
- Wide-ranging summaries of interdisciplinary soil and cov...

Contributor Bio

Humberto Blanco, PhD, is Professor of Soil Management and Applied Soil Physics in the Department of Agronomy and Horticulture, University of Nebraska, Lincoln, NE.



Epigenetics in Aquaculture

F Piferrer

Summary

This essential guide will allow you to understand how new developments in our knowledge of epigenetic mechanisms and epigenetic inheritance can be applied to improve aquaculture production and aquatic resource management and conservation.

Epigenetics is the study of heritable changes in gene expression that are independent of alterations in the nucleotide sequence. It integrates genomic and environmental influences to shape the phenotype. Epigenetics is a field with particular relevance to aquaculture and aquatic organisms, since it underpins acclimatory responses to diverse and changing environments and inheritance of desired phenotypes.

Epigenetics in Aquaculture provides a comprehensive introduction to epigenetics, epigenetic mechanisms, epigenetic inheritance, and research methods. It also provides the current state of the art on research and development on epigenetics in the major functions of aquatic organisms in the framework of aquaculture production. The fact that aquaculture is the fastest-growing sector of food production makes the book especially timely.

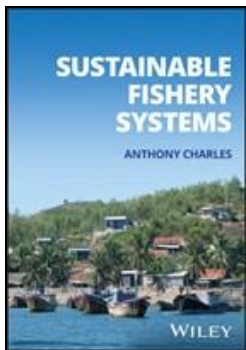
Readers will also find:

- Detailed treatment of subjects including aquatic faunal reproduction, sex determination, growth r...

Contributor Bio

Francesc Piferrer is Research Professor and Head of the Reproductive Physiology and Environmental Epigenetics Group at the Institute of Marine Sciences, Spanish National Research Council, Barcelona, Spain.

Han-Ping Wang is Principal Scientist, Research Professor, and Director of the Ohio Center for Aquaculture Research and Development at The Ohio State University, Piketon, Ohio, USA.



Sustainable Fishery Systems (2nd Edition)

Anthony Charles

Summary

An up-to-date and interdisciplinary guide to sustainable fisheries

Fisheries, whether small-scale or large-scale, are filled with complexity and uncertainty. Making the right decisions to successfully manage fisheries for sustainably and resilience requires a systems approach – including both natural and human elements, and their many interactions. To understand fisheries, and how they change over time, a diverse range of fishery knowledge must be brought together.

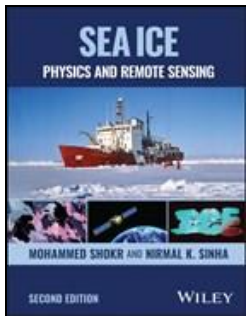
Sustainable Fishery Systems, 2nd edition meets these needs of a now-flourishing interdisciplinary area of study. The new edition provides essential information that can be readily applied within government, community, industrial, academic and research settings.

Sustainable Fishery Systems, 2nd edition retains the first edition's emphasis on themes such as sustainability, resilience, uncertainty, complexity, and conflict, and expands its treatment of topics that have, since the first edition's publication, become crucial to consider in the field of fisheries. As a result, readers will find:

- Updated and expanded coverage of topics including coastal conservation, ecosystem-based management, co-management, community-based manage...

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440 Pages
Technology & Engineering /
Fisheries & Aquaculture



Sea Ice (2nd Edition)

Physics and Remote Sensing

Mohammed Shokr, Nirmal K. Sinha

Summary

SEA ICE

The latest edition of the gold standard in sea ice references

In the newly revised second edition of *Sea Ice: Physics and Remote Sensing*, a team of distinguished researchers delivers an in-depth review of the features and structural properties of ice, as well as the latest advances in geophysical sensors, ice parameter retrieval techniques, and remote sensing data. The book has been updated to reflect the latest scientific developments in macro- and micro-scale sea ice research.

For this edition, the authors have included high-quality photographs of thin sections from cores of various ice types, as well as a comprehensive account of all major field expeditions that have systematically surveyed sea ice and its properties. Readers will also find:

- A thorough introduction to ice physics and physical processes, including ice morphology and age-based structural features
- Practical discussions of radiometric and radar-scattering observations from sea ice, including radar backscatter and microwave emission
- The latest techniques for the retrieval of sea ice parameters from space-borne and airborne sensor data
- New chapters on sea ice thermal microwave emissions and on the impact of climate c...

Contributor Bio

Mohammed Shokr is a Retired Senior Scientist at the Meteorological Research Division of Environment and Climate Change Canada. He is a senior member of IEEE Geoscience and Remote Sensing Society. He spent his scientific career studying sea ice physics and remote sensing.

Nirmal K. Sinha is a Retired Senior Scientist at the Institute for Aerospace Research, National Research Council of Canada. He is an expert on engineering physics and optics. He has recently published another book



Core-Mantle Co-Evolution

An Interdisciplinary Approach

Takashi Nakagawa, Taku Tsuchiya, Madhusoodhan Satish-Kumar, George Helffrich

Summary

New insights into interactions between the core and mantle

The Earth's deep interior is difficult to study directly but recent technological advances have enabled new observations, experiments, analysis, and simulations to better understand deep Earth processes.

Core Mantle Co-Evolution: An Interdisciplinary Approach seeks to address some of the major unsolved issues around the core-mantle interaction and co-evolution. It provides the latest insights into dynamics, structure, and evolution in the core-mantle boundary region.

Volume highlights include:

- Latest technological advances in high pressure experiments and their application to understanding the mineral physical properties and stability of phases in deep Earth
- Recent progress in observational seismology, geochemical analysis, geoneutrino experiments, and numerical modeling for understanding the heterogeneity of the lower mantle
- Theoretical investigations on thermal-chemical evolution of Earth's mantle and core
- Exploring thermal-chemical-mechanical-electromagnetic interactions in the core-mantle boundary regions

The American Geophysical Union promotes discovery in Earth and space science for the benefit of humanity. Its publications d...

Contributor Bio

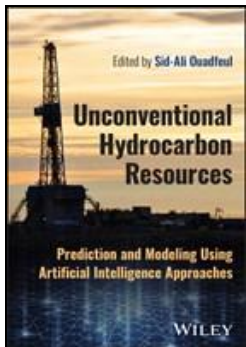
Takashi Nakagawa, Kobe University and Hiroshima University, Japan

Taku Tsuchiya, Ehime University, Japan

Madhusoodhan Satish-Kumar, Niigata University, Japan

American Geophysical Union
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Series: Geophysical
Monograph Series



Wiley
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Hardcover

304 Pages
Science / Earth Sciences

Unconventional Hydrocarbon Resources: Prediction and Modeling Using Artificial Intelligence Approaches

Ouadfeul

Summary

Enables readers to save time and effort in exploring and exploiting shale gas and other unconventional fossil fuels by making use of advanced predictive tools.

Unconventional Hydrocarbon Resources highlights novel concepts and techniques for the geophysical exploration of shale and other tight hydrocarbon reservoirs, focusing on artificial intelligence approaches for modeling and predicting key reservoir properties such as pore pressure, water saturation, and wellbore stability. Numerous application examples and case studies present real-life data from different unconventional hydrocarbon fields such as the Barnett Shale (USA), the Williston Basin (USA), and the Ahnet and Berkine Basins (Algeria).

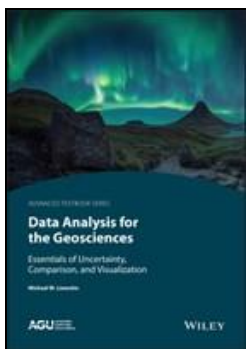
Unconventional Hydrocarbon Resources explores a wide range of reservoir properties, including modeling of the geomechanics of shale gas reservoirs, petrophysics analysis of shale and tight sand gas reservoirs, and prediction of hydraulic fracturing effects, fluid flow, and permeability.

Sample topics covered in *Unconventional Hydrocarbon Resources* include:

- Calculation of petrophysical parameter curves for non-conventional reservoir modeling and characterization
- Comparison of the Levenberg-Marq...

Contributor Bio

Sid-Ali Ouadfeul, Professor, Department of Geophysics, Geology and Reservoir Engineering, Algerian Petroleum Institute-IAP Corporate University, Algeria.



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480 Pages
Science / Earth Sciences
Series: AGU Advanced Textbooks

Data Analysis for the Geosciences

Essentials of Uncertainty, Comparison, and Visualization

Liemohn

Summary

Overview of more advanced analysis techniques, including visualization, periodicity, model uncertainty quantification, and machine learning, and when these are applicable towards the concept of uncertainty, the scientific method, and how uncertainty plays a role in discovery

Undergraduate students in STEM disciplines need to gain an appreciation of the uncertainties surrounding observations and model results. This uncertainty strongly governs the interpretation of the values and especially the comparison of several values. Students are usually introduced to the concept of uncertainty, usually at the most basic level as part of an introductory laboratory course and then again, perhaps, within a more advanced laboratory course. These exposures to uncertainty is often only taught at a shallow level of detail, typically only enough to put an error bar on a graph. This barely engages the student in the concept of uncertainty and often does not address the topic of uncertainty propagation as the values are processed (i.e., used as a value in an equation to yield a new number). While data-model comparisons have always been an essential component of scientific research, it is often a topic ...

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Noisy Oceans

Monitoring Seismic and Acoustic Signals in the Marine Environment

Gaye Bayrakci, Frauke Klingelhoef

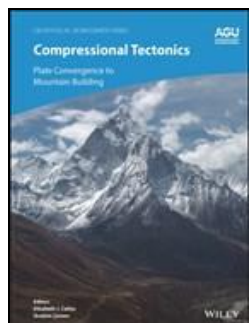
Summary

Non-seismic events (NSE) include all seismic events non-associated with tectonic movements along a fault or active seismic sources. A vast variety of different signals are routinely recorded at sea, for example, gas migration within the shallow sediments and gas emission from the seafloor in hydrothermal vents, pockmarks and mud volcanoes; volcanic tremors; tides and other ambient noise; anthropogenic noise; military tracking and marine mammal calls. The waveforms of these signals are recognizably different from earthquakes but the lack of a waveform database for the classification of non-tectonic seismic events makes it challenging to detect and study these events.

Monitoring Seismic and Acoustic Waves at Sea describes the non-tectonic related seismic signals, show examples of their waveforms, discuss the methodologies allowing to detect and study them, outline their impact and the remaining questions and establish a nomenclature for scientists working on these events, to ease future communications. Studies show examples where NSE's are used for gaining new knowledge in multiple domains of sciences. Volcanic tremors are studied to track the magma movements and used as a successful...

American Geophysical Union
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350 Pages
Science / Earth Sciences
Series: Geophysical
Monograph Series



Compressional Tectonics

Plate Convergence to Mountain Building

Catlos

Summary

A synthesis of current knowledge on collisional and convergent plate boundaries worldwide

Major mountain belts on Earth, such as the Alps, Himalayas, and Appalachians, have been built by compressional tectonic processes during continent-continent and arc-continent collisions. Understanding their formation and evolution is important because of the hazards associated with convergent and collisional plate boundaries, and because these mountain belts contain resources such as precious metals, rare earth elements, oil, gas, and coal.

Compressional Tectonics: Plate Convergence to Mountain Building reviews our present-day knowledge of the tectonic evolution of the Alpine-Himalayan and Appalachian belts.

Volume highlights include:

- overview of terminology relating to compressional and contractional tectonics
- discussion of subduction zone dynamics
- debates over the timing of the collision and convergence of particular subduction and suture zones
- examples of the different stages in the development of orogenic belts

This book is one of a set of three *Tectonic Processes: A Global View*

The American Geophysical Union promotes discovery in Earth and space science for the benefit of humanity. Its publication...

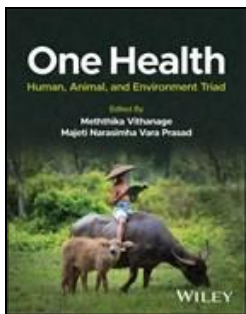
Contributor Bio

Elizabeth J. Catlos, The University of Texas at Austin, USA

Thrahim Cemen, The University of Alabama, USA

American Geophysical Union
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352 Pages
Science / Earth Sciences
Series: Geophysical
Monograph Series



One Health

Human, Animal, and Environment Triad

Meththika Vithanage, Majeti Narasimha Vara Prasad

Summary

A balanced and multidisciplinary exploration of the One Health concept

In *One Health: Human, Animal, and Environment Triad*, a team of distinguished researchers introduces and explains the concept of One Health by providing an overview of the One Health idea from the perspective of diverse disciplines, from earth and environmental science to ecology and conservation to veterinary and human medicine. The authors also present case studies demonstrating the real-world challenges and opportunities of this interdisciplinary approach to sustainable human well-being.

Readers will find insightful discussions of the interactions between chemical pollutants and water, soil, and the atmosphere, as well as detailed examinations of sustainable food supply, waste management, and pathogen control, backed up by extensive reference data.

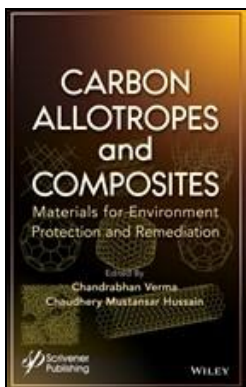
One Health: Human, Animal, and Environment Triad also includes:

- The emergence and re-emergence of zoonoses and other infectious diseases
- The behavior of microplastics in soil and water
- Organic farming and its influence on soil health
- The role of light for human well-being

Perfect for researchers interested in global health, ecological health, medical geology, toxicology, ep...

Contributor Bio

Meththika Vithanage is Professor and Director of the Ecosphere Resilience Research Center in the Faculty of Applied Sciences at the University of Sri Jayewardenepura in Sri Lanka. Her research is focused on the environmental remediation of toxic metals, antibiotics, agrochemicals, serpentine soil chemistry, and waste biomass conversion.



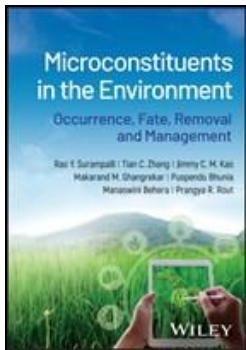
Carbon Allotropes and Composites

Materials for Environment Protection and Remediation

Chandrabhan Verma, Chaudhery Mustansar Hussain

Wiley-Scrivener
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410 Pages
Technology & Engineering /
Environmental



Microconstituents in the Environment

Occurrence, Fate, Removal and Management

RY Surampalli

Summary

Comprehensive introduction to managing novel pollutants commonly released into the environment through industrial and everyday processes

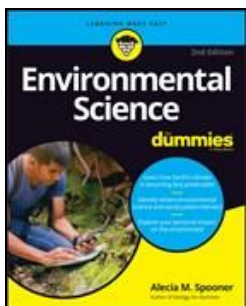
Microconstituents in the Environment: Occurrence, Fate, Removal and Management provides the readers with an understanding of the occurrence and fate of microconstituents, pollutants that have not previously been detected or regulated under current environmental laws or may cause known or suspected adverse ecological and/or human health effects even at insignificant levels, covering their presence in the environment and possible management strategies. The text is practice-oriented and evaluates a wide range of technologies for pollutant removal and how to implement them in the field.

In *Microconstituents in the Environment*, readers will find information on:

- Fundamental ideas regarding microconstituents, including their classification, major sources, and detection methods, and removal of them via biological treatment techniques
- Fate and transport of microconstituents in various environmental domains, including mathematical modeling based on remote sensing techniques
- Physicochemical treatment techniques for microconstituents, including precipitation, abso...

Contributor Bio

Rao Y. Surampalli is President and Chief Executive Officer of the Global Institute for Energy, Environment and Sustainability (GIEES) in Lenexa, USA. **Jimmy C.M. Kao** is Professor in the Institute of Environmental Engineering at the National Sun Yat-sen University in Kaohsiung, Taiwan. **Tian C. Zhang** is Professor in the department of Civil Engineering at the University of Nebraska-Lincoln (UNL), USA. **Makarand M. Ghangrekar** is Institute Chair Professor in the Department of Civil Engineering at the Indian Institute of Technology Kharagpur, India. **Puspendu Bhunia** is Associate Professor at the School of Infrastructure, Indian Institute of Technology Bhubaneswar, India. **Manaswini Behera** is Assistant Professor of Environmental Engineering in the



Environmental Science For Dummies (2nd Edition)

Alecia M. Spooner

Summary

Ace your environmental science class and get smart about the environment

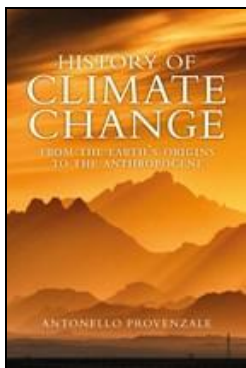
Environmental Science For Dummies is a straightforward guide to the interrelationships of the natural world and the role that humans play in the environment. This book tracks to a typical introductory environmental science curriculum at the college level—and is great as a supplement or study guide for AP Environmental Science, too. Uncover fascinating facts about the earth's natural resources and the problems that arise when resources like air, water, and soil are contaminated by pollutants. If you're in need of extra help for a class, considering a career in environmental science, or simply care about our planet and want to learn more about helping the environment, this friendly Dummies resource is a great place to start.

- The key concepts of environmental science, clearly explained
- All about the changing climate, including new understanding of methane release in the arctic
- Earth's natural resources and the importance of protecting them
- A new chapter on environmental justice, where issues of poverty and sustainability intersect

A solid foundation in environmental science is essential for anyone looking for a career ...

For Dummies
9781394161393
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Paperback

400 Pages
Science / Environmental
Science



History of Climate Change

From the Earth's Origins to the Anthropocene

Antonello Provenzale, Alice Kilgariff

Summary

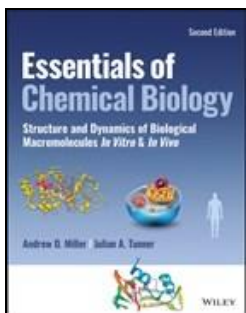
Theories and opinions about climate change abound – from those claiming that human-induced climate change is already beyond control to those who express scepticism about the real extent of these changes. How should we weigh up the scientific evidence, and what role does climate change play in the history of the Earth?

In this comprehensive history of the climate and climate change, Antonello Provenzale explains how the planetary climate system works and how the climate has evolved over millions of years. Starting from the catastrophic events that marked the early history of the Earth, including seas of magma, global glaciations and mass extinctions, he shows that the climate has fluctuated between hot and cold periods: at certain times, the Earth was hot and lush with forests, while at others it was almost entirely covered by a thick layer of ice. The mechanisms that determine the modifications of the climate are multiple and complex and include external factors, such as solar luminosity and variations in the Earth's orbit, as well as internal processes connecting the atmosphere, the oceans, the crust, the mantle and the biosphere, which comprises living organisms.

While the clima...

Contributor Bio

Antonello Provenzale is Director of the Institute of Geosciences and Earth Resources at the National Research Council of Italy.



Essentials of Chemical Biology (2nd Edition)

Miller

Summary

Discover a detailed knowledge of concepts and techniques of this unique multi-discipline

Chemical Biology is devoted to understanding the way that Biology works at the molecular level. This is a problem-driven multi-discipline, incorporating as it does Organic, Physical, Inorganic, and Analytical Chemistry alongside newer emerging molecular disciplines. In recent years, Chemical Biology has emerged as a vibrant and growing multi-discipline distinct from Biochemistry that is focused on the quantitative analyses of the structures and functions of biological macromolecules and macromolecular lipid assemblies, at first in isolation, then *in vitro* and *in vivo*.

The second edition of the *Essentials of Chemical Biology* begins with a thorough introduction to the structure of biological macromolecules and macromolecular lipid assemblies, before moving on to the principles of chemical and biological synthesis, followed by descriptions of a comprehensive variety of research techniques and experimental methods. In addition, the second edition now includes new sections on the behaviour of biological macromolecules and macromolecular lipid assemblies in cells *in vitro* and in organisms *in vivo*. Give...

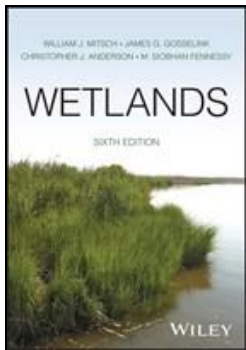
Contributor Bio

Andrew D. Miller, PhD, is currently Professor of Organic Chemistry and Chemical Biology at Mendel University in Brno, Czech Republic, and founder/CSO of KP Therapeutics (Europe) s.r.o., a nanomedicine and precision therapeutics company, also based in the Czech Republic.

Julian A. Tanner, PhD, is a Professor of the School of Biomedical Sciences, the University of Hong Kong, and an Assistant Dean of the LKS Faculty of Medicine at the University of Hong Kong.

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Paperback

656 Pages
Science / Life Sciences



Wetlands (6th Edition)

William J. Mitsch, James G. Gosselink, Christopher J. Anderson, M. Siobhan Fennessy

Summary

The definitive guide to wetlands for students and professionals alike

Wetlands rank among the most productive but also the most vulnerable ecosystems. They break down toxins and help maintain aquatic ecosystems, provide both permanent and temporary homes for key species, and contribute enormously to biodiversity and global ecological health. In recent years the importance of wetlands has been increasingly well understood, and their management and restoration has become a particular focus of environmental research.

Wetlands provides a thorough and comprehensive overview of wetlands, updated to reflect the latest research findings and methodological approaches, as it has done for more than a generation. The new edition has been optimized for classroom use, breaking down the topic into four parts: introduction to wetlands, the wetland environment, wetland ecosystems, and wetland management.

Readers of the sixth edition of *Wetlands* will also find:

- A detailed discussion of the role of wetlands in improving water quality, protection from storm damage, and other ecosystem services
- The latest approaches and examples of wetland creation and restoration
- A thorough discussion of the impacts of clim...

Contributor Bio

William J. Mitsch, PhD, is Professor Emeritus in both the School of Environment and Natural Resources at The Ohio State University and in The Water School at Florida Gulf Coast University. Prior to OSU and FGCU, he held professorships at Illinois Institute of Technology and University of Louisville. His research and teaching focused on wetland ecology and biogeochemistry, wetland creation and restoration, ecological engineering and ecosystem restoration. He founded and was editor-in-chief for 25 years of the international journal *Ecological Engineering* and was a Stockholm Water Prize Laureate in 2004. Dr. Mitsch completed 85 graduate students



Biology and Ecology of Fishes (3rd Edition)

James S. Diana, Tomas O. Höök

Summary

Immerse yourself in the world of fish ecology with the newest edition of this essential introduction

The study of fish ecology has traditionally proceeded along two tracks: the first is more basic, concerned with the anatomy, physiology and theoretical ecology of fish, and the second is more practical, concerning itself with fish populations, management, and habitats. Many fish researchers have come to view this distinction as artificial, and to develop a new study of fish that combines both tracks in a single holistic approach. It has never been more critical for introductory textbooks to represent this combined study in order to prepare the next generation of fish biologists and fishery scientists.

Biology and Ecology of Fishes meets this need with a textbook that incorporates both biology and population management. Beginning with a general introduction to aquatic life and ecosystems, this book covers anatomical, environmental, and ethological topics to give a thoroughly rounded view of its subject, promising to serve as the fundamental introduction to multidisciplinary fish studies.

Readers of the third edition of *Biology and Ecology of Fishes* will also find:

- Detailed coverage of su...

Contributor Bio

James Diana, PhD is Emeritus Professor of Fisheries and Aquaculture and Former Director of the Michigan Sea Grant College Program in the School of Natural Resources and Environment, University of Michigan, Ann Arbor, MI, USA.

Tomas Höök, PhD is Professor of Fisheries Biology in the Department of Forestry and Natural Resources, Purdue University, West Lafayette, IN, USA, and Director of the Illinois-Indiana Sea Grant College Program.

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Science / Life Sciences

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536 Pages
Technology & Engineering / Fisheries & Aquaculture



Next-Generation Algae, Volume 1

Applications in Agriculture, Food and Environment

Adetunji

Summary

This book provides up-to-date and cutting-edge information on the application of algae in producing sustainable solutions to various challenges that arise from an increase in agricultural production, as well as its utilization in bioremediation of industrial wastewater. Moreover, this

book provides detailed information about the recent advancements in smart microalgae wastewater treatment using Internet of Things (IoT) and edge computing applications. Other topics covered include the use of microalgae in various applications (with past, present and future projections); the use of algae to remove arsenic; algae's role in plastic biodegradation,

heavy metal bioremediation, and toxicity removal from industrial wastewater; the application of DNA transfer techniques in algae; the use of algae as food and in the production of food, ascorbic acid, health food, supplements, and food surrogates; relevant biostimulants and biofertilizers that could be derived from cyanobacterials and their role in sustainable agriculture; and algae's application in the effective production of biofuels and bioenergy.

Contributor Bio

Charles Oluwaseun Adetunji (Ph.D.) is an Associate Professor at the Microbiology Department, Edo University Iyamho (EUI), Nigeria. He has filled several scientific patents and has published over 180 scientific journals, books, and conference proceedings. He has received numerous awards from international organizations.

Prof. Julius Kola Oloke, PhD, is the Vice Chancellor of Precious Cornerstone University, Ibadan, Oyo State, Nigeria.

Naveen Dwivedi, PhD, is an associate professor in the Department of Biotechnology at the S. D. College of Engineering and Technology, Muzaffarnagar, Uttar Pradesh, India.

Next-Generation Algae, Volume 2

Adetunji

Summary

This second volume places special emphasis on the discovery of novel and biologically active compounds from algae. It covers a wide range of applications, including the use of astaxanthin and carotenoids derived from algae for the production of nutraceuticals, pharmaceuticals, additives, food supplements, and feed. The book also discusses the production of polyunsaturated fatty acids (PUFAs) and its biomedical applications, recent advancements in the research of sulfated polysaccharides from algal origin, and its antiulcer bioactivities. Other topics include the application of algae in wound healing, the use of nanotechnology for the bioengineering of useful metabolites derived from algae and their multifaceted applications, and the production of single-cell proteins and pigments with high relevance in industry.

Contributor Bio

Charles Oluwaseun Adetunji (Ph.D.) is an Associate Professor at the Microbiology Department, Edo University Iyamho (EUI), Nigeria. He has filled several scientific patents and has published over 180 scientific journals, books, and conference proceedings. He has received numerous awards from international organizations.

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Science / Life Sciences

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Research Ethics for Scientists (2nd Edition)

A Companion for Students

C Stewart Jr.

Summary

A fully updated textbook helping advanced students and young scientists navigate the ethical challenges that are common to scientific researchers in academia

As the number of scientific journals, government regulations, and institutional guidelines continue to grow, research scientists are increasingly facing ethical dilemmas. Even seasoned and honest scientists can unintentionally commit research misconduct or fail to detect and address intentional misbehavior.

Research Ethics for Scientists is an authoritative “how-to” guide that clearly outlines best practices in scientific research. Critically examining the key problems that arise in research management and practice, this real-world handbook helps students and young scientists conduct scientific research that adheres to the highest ethical standards. Accessible chapters, logically organized into functional themes and units, cover all the major areas that are crucial for sustained success in science: ideas, people, data, publications, and funding.

The second edition offers new and updated content throughout, including discussions of recent innovations to detect and adjudicate research misconduct, vulnerabilities in research practic...

Contributor Bio

C. Neal Stewart Jr. is Ivan Racheff Chaired Professor of Plant Molecular Genetics, Department of Plant Sciences, University of Tennessee, USA. He teaches a graduate-level research ethics course that focuses on best practices in research that are portable among different areas of biology, medicine, and agriculture.

Genetic Theory and Analysis (2nd Edition)

Finding Meaning in a Genome

DE Miller

Summary

Understand and apply what drives change of characteristic genetic traits and heredity

Genetics is the study of how traits are passed from parents to their offspring and how the variation in those traits affects the development and health of the organism. Investigating how these traits affect the organism involves a diverse set of approaches and tools, including genetic screens, DNA and RNA sequencing, mapping, and methods to understand the structure and function of proteins. Thus, there is a need for a textbook that provides a broad overview of these methods.

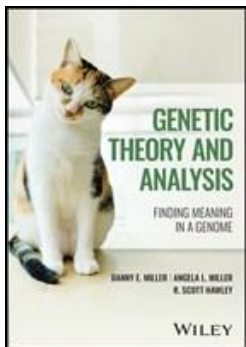
Genetic Theory and Analysis meets this need by describing key approaches and methods in genetic analysis through a historical lens. Focusing on the five basic principles underlying the field—mutation, complementation, recombination, segregation, and regulation—it identifies the full suite of tests and methodologies available to the geneticist in an age of flourishing genetic and genomic research. This second edition of the text has been updated to reflect recent advances and increase accessibility to advanced undergraduate students.

Genetic Theory and Analysis, 2nd edition readers will also find:

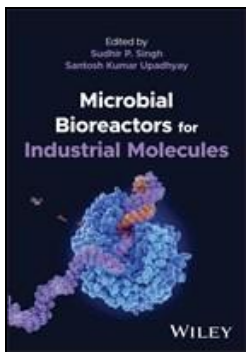
- Detailed treatment of subjects inc...

Contributor Bio

Danny E. Miller, MD, PhD is an Assistant Professor in the Department of Pediatrics, Division of Genetic Medicine and Laboratory Medicine & Pathology at the University of Washington in Seattle, WA, USA. He is the recipient of the 2017 Larry Sandler Memorial Award, the 2018 Lawrence E. Lamb Prize for Medical Research, and a 2022 National Institutes of Health Director’s Early Independence Award. Dr Miller is a leader in the field of long-read sequencing technology and the use of new technology to evaluate individuals with unsolved genetic disorders.



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Science / Life Sciences



Microbial Bioreactors for Industrial Molecules

SP Singh

Summary

Harness the planet's most numerous resources with this comprehensive guide

Microorganisms constitute the invisible majority of all living creatures on Earth. They are found virtually everywhere on the planet, including environments too extreme for any larger organisms to exist. They form a hugely significant resource whose potential value for human society cannot be overlooked. The creation of microorganism-based bioreactors for the industrial production of valuable biomolecules has the potential to revolutionize a range of industries and fields.

Microbial Bioreactors for Industrial Molecules provides a comprehensive introduction to these bioresources. It covers all potential approaches to the use of microbial technology and the production of high-value biomolecules for the pharmaceutical, cosmetic, and agricultural industries, among others. The book's rigorous detail and global, holistic approach to harnessing the power of the planetary microbiome make it an invaluable introduction to this growing area of research and production.

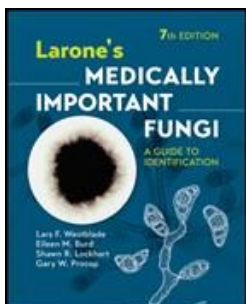
Readers will also find:

- Detailed coverage of basic, applied, biosynthetic, and translational approaches to the use of microbial technology
- Discussion of indus...

Contributor Bio

Sudhir P. Singh is a scientist working in biotechnology and synthetic biology at the Center of Innovative and Applied Bioprocessing, Mohali, India. His research focuses on the catalytic biosynthesis of functional biomolecules.

Santosh Kumar Upadhyay is Assistant Professor in the Department of Botany, Punjab University, Chadigarh, India. His research focuses on the isolation and production of plant-based proteins for industry and defense.



Larone's Medically Important Fungi (7th Edition)

A Guide to Identification

Lars F. Westblade, Eileen M. Burd, Shawn R. Lockhart, Gary W. Procop

Summary

The definitive guide for identifying fungi from clinical specimens

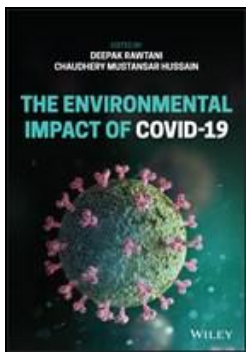
With a new team of authors, Larone's Medically Important Fungi, Seventh Edition, continues the longstanding tradition of high-quality content to expand your knowledge and support your work in clinical mycology by:

- Providing detailed descriptions of the major mycoses as viewed in patients' specimens by direct microscopic examination of stained slides
- Offering a logical step-by-step process for identification of cultured organisms, utilizing detailed descriptions, images, pointers on organisms' similarities and distinctions, and selected references for further information
- Covering more than 150 of the fungi most commonly encountered in the clinical mycology laboratory, including new entries for *Emergomyces*, *Metarhizium anisopliae*, *Rasamsonia argillacea*, *Rhinochrysiella mackenziei*, *Schizophyllum commune*, and *Thermothelomyces thermophilus*
- Presenting details on each organism's pathogenicity, growth characteristics, relevant biochemical reactions, and microscopic morphology, illustrated with photomicrographs, unique and elegant drawings, and color photos of colony morphology and various test results
- Explaining changes in fungal ...

Contributor Bio

Lars F. Westblade, PhD, D(ABMM) is the Director of the Clinical Microbiology Service at NewYork-Presbyterian/Weill Cornell Medical Center and Associate Professor at Weill Cornell Medicine with a primary appointment in the Department of Pathology and Laboratory Medicine and a secondary appointment in the Division of Infectious Diseases, Department of Medicine. He earned his doctoral degree from the University of Birmingham in the United Kingdom, and completed a fellowship in medical and public health laboratory microbiology at Washington University School of Medicine in St. Louis.

Eileen M. Burd, PhD, D(ABMM) is the Director of the Clinical Microbiology Laboratory at Emory University.



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Technology & Engineering /
Environmental

The Environmental Impact of COVID-19

Rawtani

Summary

Discover the wider environmental effects of the COVID-19 pandemic with this timely and up to date resource

Environmental Impact of COVID-19 delivers an insightful analysis of various environmental aspects of the COVID-19 pandemic that have caused global concern. The book discusses the transmission of COVID-19 in the environment, the evaluation and analysis of COVID-19, the socio-economic implications of COVID-19, its environmental impact, risk mitigation and management, waste management, and the environmental implications of the virus.

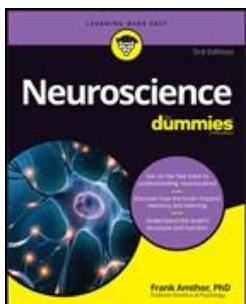
It also considers the socio-economic implications of COVID-19's spread, including the effects of international lockdowns on different strata of society and various industries, including the biomedical industry, the environmental industry, and the pharmaceutical industry.

An entire section of the text is devoted to a discussion about the waste generated due to COVID-19 and the effect of that waste on different environmental bodies. Another is dedicated to the impact of COVID-19 on the environment in the short- and long-term, including its effect on climate and climate change. Readers will also benefit from the inclusion of:

- A thorough introduction to ...

Contributor Bio

Chaudhery Mustansar Hussain, PhD is an Adjunct Professor and Director of Chemistry & EVSc Labs in the Department of Chemistry & Environmental Sciences at the New Jersey Institute of Technology (NJIT), Newark, New Jersey, USA. His research is focused on the applications of Nanotechnology & Advanced technologies & Materials, Analytical Chemistry, Environmental Management, and Various Industries. Dr. Hussain is the author of numerous papers in peer-reviewed journals as well as prolific author and editor of several scientific monographs and handbooks.



For Dummies
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Science / Life Sciences

Neuroscience For Dummies (3rd Edition)

Frank Amthor

Summary

A fascinating look at what's rattling around in your skull

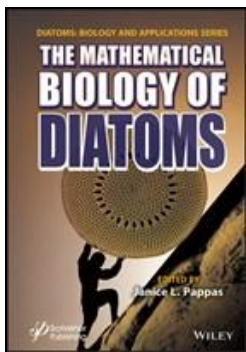
Neuroscience For Dummies introduces you to the mind-boggling study of the human brain. It tracks to the content of a typical introductory neuroscience class at the college level—and it's perfect for anyone curious about what makes us tick. New technologies and an explosion of research have completely transformed our understanding of memory, depression, the mind-body connection, learning, and genetics. This updated edition—still in classic, beginner-friendly Dummies style—covers the latest research advances and technologies in the field of neuroscience. Put some knowledge about the brain into your brain.

- Grasp the basic concepts and applications of neuroscience
- Understand the brain's structure and function
- Explore how the brain impacts memory, learning, and emotions
- Discover how the brain is connected with other physical systems

For students and general readers alike, *Neuroscience For Dummies* is a great way to understand what's going on inside our heads.

Contributor Bio

Frank Amthor, PhD, is Professor Emeritus of Psychology at the University of Alabama at Birmingham. Over the course of 45 years, Dr. Amthor taught the majority of the neuroscience courses offered by the UAB Psychology Department, including perception, cognitive neuroscience, and behavioral neuroscience.



The Mathematical Biology of Diatoms

Janice L. Pappas

Summary

THE MATHEMATICAL BIOLOGY OF DIATOMS

This book contains unique, advanced applications using mathematics, algorithmic techniques, geometric analysis, and other computational methods in diatom research.

Historically, diatom research has centered on taxonomy and systematics. While these topics are of the utmost importance, other aspects of this important group of unicells have been increasingly explored in the biological sciences. While mathematical applications are still rare, they are starting to take hold and provide an extensive avenue of new diatom research, including applications in multidisciplinary fields.

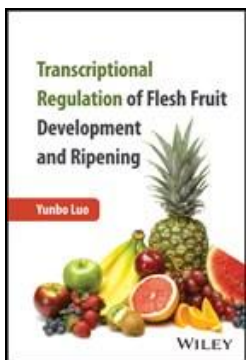
The work contained in this volume is an eclectic mix of analytical studies on diatoms. Mathematical treatment of the various biological disciplines covered in this book range from implicit, but succinct studies to more elaborate detailed computational studies. Topics include growth models, nanostructure, nanoengineering, cell growth, araphid diatoms, valve ontogeny, diatom metabolism, diatom motility, synchronization, diatom kinematics, photonics, biogenic sensors, photochemistry, diatom light response, colony growth, siliceous unicells, algal kinetics, diatom structure, diatom ima...

Contributor Bio

Audience

This book is intended for use by those in the biological sciences, theoretical biologists, applied mathematics, computational sciences, informatics, computer vision sciences, algorithm sciences, pattern recognition sciences, nanoscience, and applied engineering.

Janice L. Pappas has BA, BS and PhD degrees from the University of Michigan and an MA degree from Drake University. She is a mathematical biologist researching diatoms and invertebrates. She is a Great Lakes aquatic ecologist with studies on-board research vessels and in the lab, resulting in computational analyses of fish distributions in coastal wetlands and ecological informatics analysis of phytoplankton seasonal succession.



Transcriptional Regulation of Flesh Fruit Development and Ripening

Yunbo Luo

Summary

Transcriptional Regulation of Flesh Fruit Development and Ripening

Understand the critical factors in fruit development with this up-to-date guide

Fruit is an essential part of the human diet, and fruit production has never been more central to global human nutrition and public health. Fruit ripening is a vital stage in the emergence of nutrient-rich food, and modifications to the fruit development process can impact flavor, texture, nutritional value, and more. The process of ripening is controlled by nearly sixty transcription factors (TFs), a proper understanding of which is therefore crucial to regulating fruit quality and competing in the global food marketplace.

Transcriptional Regulation of Flesh Fruit Development and Ripening is a comprehensive introduction to recent developments in the study of fruit ripening, focusing especially on these transcription factors. It details the major families of transcription factors and their properties, as well as providing methods for screening and identifying transcription factors to aid in genetic modification of fruit. The result is a thorough, accessible reference to a critical set of factors in fruit development.

Transcriptional Regulati...

Contributor Bio

Yunbo Luo, PhD, is Director of the Special Food Research Center at the College of Food Science and Nutritional Engineering, China Agricultural University, Haidian District, Beijing, China. He is one of the world's leading experts on food science, with a huge range of publications on subjects related to flesh fruit ripening. He also serves as Vice-Chairman of the Chinese Institute of Food Science and Technology and Vice Chair of the National Center for Agro-GM Food Safety Assessment.

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Science / Life Sciences

Global Climate Change and Plant Stress Management

Mohammad Wahid Ansari, Anil Kumar Singh, Narendra Tuteja

Summary

Understand the impact of climate change on plant growth with this timely introduction

Climate change has had unprecedented consequences for plant metabolism and plant growth. In botany, adverse effects of this kind are called plant stress conditions; in recent years, the plant stress conditions generated by climate change have been the subject of considerable study. Plants have exhibited increased photosynthesis, increased water requirements, and more. There is an urgent need to understand and address these changes as we adapt to drastic changes in the global climate.

Global Climate Change and Plant Stress Management presents a comprehensive guide to the effects of global climate change on plants and plant metabolism. It introduces and describes each climate change-related condition and its components, offering a detailed analysis of the resulting stress conditions, the environmental factors which ameliorate or exacerbate them, and possible solutions. The result is a thorough, rigorous introduction to this critical subject for the future of our biome.

Readers will also find:

- Analysis of global climate change impact on various agricultural practices
- Socio-economic consequences of climate...

Contributor Bio

Mohammad Wahid Ansari is Assistant Professor in the Department of Botany, Zakir Hussain Delhi College, University of Delhi, India. He has researched and published widely on plant biology and stress tolerance.

Anil Kumar Singh is Principal Scientist at the Indian Council of Agricultural Research-National Institute for Plant Biotechnology, New Delhi, India. He has researched extensively into plant adaptations and environmental responses, as well as plant stress tolerance and related subjects.

Narendra Tuteja is Visiting Scientist at the International Centre for Genetic Engineering and Biotechnology.

Beneficial Chemical Elements of Plants

Recent Developments and Future Prospects

Sangeeta Pandey, Durgesh K. Tripathi, Vijay Pratap Singh, Shivesh Sharma, Devendra Kumar Chauhan

Summary

Understand beneficial elements and their role in the future of botany and agriculture

Beneficial elements are those which, while not essential to plant life, can provide stimulation and enhance plant growth. Properly harnessed, these elements can bolster plant growth in the face of both environmental conditions—including drought, nutrient deficiency, and excessive soil salinity—and biotic stresses like pathogens and animal activity. As climate change and population growth pose increasingly serious challenges to agriculture and essential plant production, it has never been more important to unleash the potential of beneficial elements.

Beneficial Chemical Elements of Plants is an essential resource for researchers and industry specialists looking to enhance their understanding of these elements and the range and variety of their enhancements to plant growth. Written by leading scholars in the field of plant stress tolerance and nutrient enrichment, it discusses not only the rich possibilities of beneficial elements but their mechanisms of action at both biochemical and molecular levels. It details the precise potential roles played by each major beneficial element and surveys a range ...

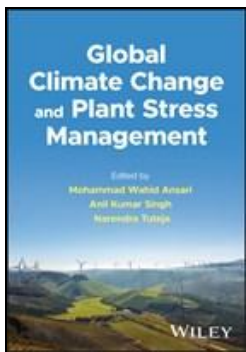
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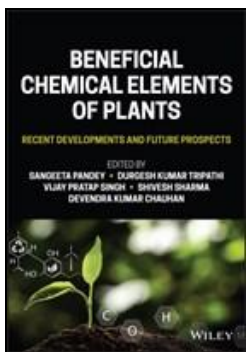
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Shivesh Sharma is Professor of Department of Biotechnology, Motilal Nehru National Institute of Technology,



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