



Biomedical and Life Sciences

Springer and Palgrave Essential Textbooks

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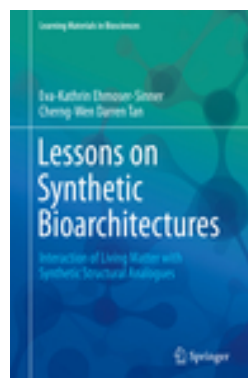
15-17 Tiergartenstrasse

Heidelberg 69121

Germany

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ISBN : 978-3-319-73122-3

Ehmoser-Sinner, Eva-Kathrin, Tan, Chennng-Wen, University of Natural Resources and Life Sciences, Vienna, Austria

Lessons on Synthetic Bioarchitectures

Interaction of Living Matter with Synthetic Structural Analogues

- Delivers a compact introduction into synthetic biology.
- Depicts intelligibly with illustrative charts how synthetic biology combines living matter with synthetic material.
- Treats ethical risk assessment in a descriptive and comprehensible way.

This textbook discusses the new relationship between artificial, synthetic material and living matter, and presents defined examples of approaches aiming for the creation of artificial cells. It also offers insights into the world of synthetic biology from its origins to the present day, showing what is currently possible in this discipline. Furthermore, it examines the ethical concerns and potential threats posed by this new field. The textbook is based on a lecture of the same title, held for master's students at the University of Natural Resources and Life Sciences (BOKU), Vienna, and is primarily intended for students of synthetic ...

Contents

Introduction.- The Minimal Cell.- Synthetic Proteins.- Biomimicry - Bottom-Up Approach.- The Tools.- Dealing with the Dangers.

Fields of Interest

Biomedical Engineering/Biotechnology; Biomedical Engineering and Bioengineering; Systems Biology; Biomaterials; Biotechnology

Content Level

Upper undergraduate

Product category

Graduate/advanced undergraduate textbook

Available

Bibliography

1st ed. 2018,VI, 65 p. 51 illus. in color. (Learning Materials in Biosciences) Softcover

Medium Type

Book

Imprint

Springer

Order Quantity



ISBN : 978-3-319-27103-3

Cleophas, Ton J., Zwinderman, Aeilko H., Albert Schweitzer Hospital, Dordrecht, Netherlands

Clinical Data Analysis on a Pocket Calculator

Understanding the Scientific Methods of Statistical Reasoning and Hypothesis Testing

- The medical and health care uses the scientific method little, the book addresses how to daily use it
- Statistical software programs are experienced as black boxes to non mathematicians
- All specific advantages of pocket calculators are summarized

In medical and health care the scientific method is little used, and statistical software programs are experienced as black box programs producing lots of p-values, but little answers to scientific questions. The pocket calculator analyses appears to be, particularly, appreciated, because they enable medical and health professionals and students for the first time to understand the scientific methods of statistical reasoning and hypothesis testing. So much so, that it can start something like a new dimension in their professional world. In addition, a number of statistical methods like power calculations and required sample size calculations ...

Contents

Preface.-I Continuous Outcome Data.- Data Spread, Standard Deviations.- Data Summaries: Histograms, Wide and Narrow Gaussian Curves.- Null-Hypothesis Testing with Graphs.- Null-Hypothesis Testing with the T-table.- One-Sample Continuous Data (One-Sample T-Test, One-Sample Wilcoxon.- Paired Continuous Data (Paired T-Test, Two-Sample Wilcoxon Signed Rank Test).- Unpaired Continuous Data (Unpaired T-Test, Mann-Whitney).- Linear Regression (Regression Coefficients, Correlation Coefficients, and their Standard Errors).- Kendall-Tau Regression for Ordinal Data.- Paired Continuous Data, Analysis with Help of Correlation Coefficients.- Power ...

Fields of Interest

Biomedicine, general; Entomology; Pharmacy; Statistics for Life Sciences, Medicine, Health Sciences

Content Level

Graduate

Product category

Graduate/advanced undergraduate textbook

Available

Bibliography

2nd ed. 2016,XXIII, 334 p. 65 illus., 24 illus. in color. Hardcover

Medium Type

Book

Imprint

Springer

Order Quantity



ISBN : 978-3-319-38638-6

Cleophas, Ton J., Zwinderman, Aeilko H., Department Medicine Albert Schweitzer Hospital, Sliedrecht, The Netherlands

Machine Learning in Medicine - a Complete Overview

- First publication of a complete overview of machine learning methodologies for the medical and health sector
- Written as a training companion, and as a must-read, not only for physicians and students, but also for anyone involved in the process and progress of health and health care
- In 80 chapters 80 different machine learning methodologies are reviewed, in combination with a data example for self-assessment

The current book is the first publication of a complete overview of machine learning methodologies for the medical and health sector. It was written as a training companion and as a must-read, not only for physicians and students, but also for any one involved in the process and progress of health and health care. In eighty chapters eighty different machine learning methodologies are reviewed, in combination with data examples for self-assessment. Each chapter can be studied without the need to consult other chapters. The amount of data stored in the world's databases doubles every 20 months, and clinicians, familiar with traditional ...

Contents

Preface. Section I Cluster and Classification Models.- Hierarchical Clustering and K-means Clustering to Identify Subgroups in Surveys (50 Patients).- Density-based Clustering to Identify Outlier Groups in Otherwise Homogeneous Data (50 Patients).- Two Step Clustering to Identify Subgroups and Predict Subgroup Memberships in Individual Future Patients (120 Patients)- Nearest Neighbors for Classifying New Medicines (2 New and 25 Old Opioids)- Predicting High-Risk-Bin Memberships (1445 Families).- Predicting Outlier Memberships (2000 Patients).- Data Mining for Visualization of Health Processes (150 Patients).- 8 Trained Decision Trees for a ...

Fields of Interest

Biomedicine, general; Medicine/Public Health, general; Statistics, general; Science, Humanities and Social Sciences, multidisciplinary

Content Level

Graduate

Product category

Graduate/advanced undergraduate textbook

Available

Bibliography

Softcover reprint of the original 1st ed. 2015, XXIV, 516 p. 159 illus. Softcover

Medium Type

Book (Paperback Initiative)

Imprint

Springer

Order Quantity



ISBN : 978-3-319-20599-1

Cleophas, Ton J., Zwinderman, Aeilko H., Department of Medicine, Dordrecht

SPSS for Starters and 2nd Levelers

- For medical and health workers it is a must-have, because statistical methods in these fields are vital and no equivalent work is available
- For medical and health students this is equally true
- A unique point is its low threshold, textually simple and at the same time full of self-assessment opportunities

A unique point of this book is its low threshold, textually simple and at the same time full of self-assessment opportunities. Other unique points are the succinctness of the chapters with 3 to 6 pages, the presence of entire-commands-texts of the statistical methodologies reviewed and the fact that dull scientific texts imposing an unnecessary burden on busy and jaded professionals have been left out. For readers requesting more background, theoretical and mathematical information a note section with references is in each chapter. The first edition in 2010 was the first publication of a complete overview of SPSS methodologies for medical ...

Contents

Preface.- Introduction.- I Continuous outcome data.- One sample continuous data.- Paired continuous outcome data normality assumed.- Paired continuous outcome data nonnormality accounted.- Paired continuous outcome data with predictors.- Unpaired continuous outcome data normality assumed.- Unpaired continuous outcome data nonnormality accounted.- Linear regression for continuous outcome data.- Recoding for categorical predictor data.- Repeated-measures-analysis of variance normality assumed.- Repeated-measures-analysis of variance nonnormality accounted.- Doubly-repeated-measures-analysis of

variance.- Multilevel modeling with mixed linear ...

Fields of Interest

Biomedicine, general; Computer Applications; Biometrics; Statistical Theory and Methods; Statistics and Computing/Statistics Programs

Content Level

Research

Product category

Graduate/advanced undergraduate textbook

Available

Bibliography

2nd ed. 2016, XXV, 375 p. 148 illus., 30 illus. in color. Hardcover

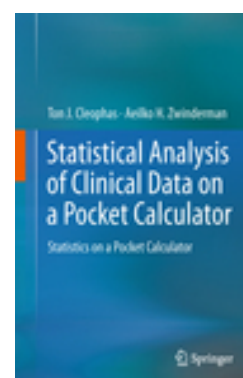
Medium Type

Book

Imprint

Springer

Order Quantity



ISBN : 978-94-007-1210-2

Cleophas, Ton J., Zwinderman, Aeilko H., Albert Schweitzer Hospital, Dordrecht, Netherlands

Statistical Analysis of Clinical Data on a Pocket Calculator

Statistics on a Pocket Calculator

- It addresses those who wish to understand statistics but have no time for complex mathematics.
- With less than 100 pages the book yet covers all relevant pocket calculator statistical methods.
- An alternative book with similar content is not available on the market.

The core principles of statistical analysis are too easily forgotten in today's world of powerful computers and time-saving algorithms. This step-by-step primer takes

researchers who lack the confidence to conduct their own analyses right back to basics, allowing them to scrutinize their own data through a series of rapidly executed reckonings on a simple pocket calculator. A range of easily navigable tutorials facilitate the reader's assimilation of the techniques, while a separate chapter on next generation Flash prepares them for future developments in the field. This practical volume also contains tips on how to deny hackers access to ...

Contents

Chapter 1: Introduction. Chapter 2: Standard deviation. Chapter 3: T-tests. Chapter 4: Non-parametric tests. Chapter 5: Confidence interval. Chapter 6: Equivalence testing. Chapter 7: Power-equations. Chapter 8: Sample size. Chapter 9: Non-inferiority testing. Chapter 10: Z-test for cross-tabs. Chapter 11: Chi-square test for cross-tabs. Chapter 13: Odds ratios. Chapter 12: Log likelihood ratio tests. Chapter 14: McNemar's t-test. Chapter 15: Bonferroni t-test. Chapter 16: Variability analysis. Chapter 17: Confounding. Chapter 18: Interaction. Chapter 19: Duplicate standard deviation for reliability assessment of continuous data. Chapter 20: ...

Fields of Interest

Biomedicine, general; Chemistry/Food Science, general; Pharmacy; Medicine/Public Health, general; Computer Science, general; Life Sciences, general

Content Level

Upper undergraduate

Product category

Graduate/advanced undergraduate textbook

Available

Bibliography

2011,VIII, 58 p. Hardcover

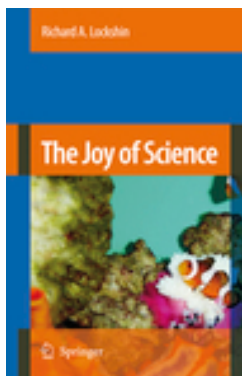
Medium Type

Book

Imprint

Springer

Order Quantity



ISBN : 978-1-4020-6098-4

Lockshin, Richard A., St. John's University Dept. Biological Sciences, Queens, NY, USA

The Joy of Science

An Examination of How Scientists Ask and Answer Questions Using the Story of Evolution as a Paradigm

- Addresses the theoretical basis of science and is not "watered-down Biology"
- Explains the most complex issues in a clear and non-technical manner
- Emphasizes the accessibility of scientific thinking and the excitement of science even to students who have feared or disliked what they considered to be science

Scientists have great passion. What could be more exhilarating than to go to work every day feeling as if you were once again a nine-year-old called up to the stage to help the magician with his trick? To be a researcher is to always be in the position of having the chance to see how the trick works. No wonder that many researchers feel that each new day is the most exciting day to be a scientist. It therefore is not surprising that scientists have such trouble communicating with non-scientists. It is difficult for the scientist to understand a life not focused on the desire to understand. But the differences are not that. Everyone wants to ...

Contents

Chapter 1: The Origin of the Earth and of Species of Animals and Plants as Seen Before the Enlightenment.- Chapter 2: The Seashells on the Mountaintop.- Chapter 3: Aristotle's and Linnaeus' Classifications of Living Creatures.- Chapter 4: Natural Selection: the Second Half of Darwin's Hypothesis.- Chapter 5: Darwin's Hypothesis.- Chapter 6: The stuff of Inheritance: DNA, RNA, and Mutations.- Chapter 7: The Story of our Planet.- Chapter 8: Competition Among Species.- Chapter 9: The Importance of Disease.- Chapter 10: The Evolution of Humans

Fields of Interest

Biomedicine, general; Evolutionary Biology; Microbial Genetics and Genomics; Popular Science in Nature and Environment

Content Level

Graduate

Product category

Graduate/advanced undergraduate textbook

Available

Bibliography

2007,XI, 440 p. Hardcover

Medium Type

Book

Imprint

Springer

Order Quantity



ISBN : 978-94-007-1170-9

Miettinen, O. S., McGill University Cornell University, MONTREAL, QC, Canada

Epidemiological Research: Terms and Concepts

- The author is uniquely qualified for scholarly delineation – both descriptive and quasi-prescriptive – of the terms and concepts of research to produce the scientific knowledge-base for clinical and community medicine.
- The book is unique in its organization and wealth of explicatory annotations.
- Related to the book's unique organization is its suggested hierarchy of the concepts' coverage in an introductory course on 'epidemiological' research.

The book is organized so as to address in separate sections first the preparatory topics of medicine (clinical and epidemiological), science in general, and statistics (mathematical); then topics of epidemiological research proper; and, finally, topics of 'meta-epidemiological' clinical research. In those two main sections, a further grouping is based on the distraction between objects and methods of study. In this framework, the particular topics are addressed both descriptively and quasi-

prescriptively, commonly with a number of explicatory annotations. This book is intended to serve as a handbook for whomever is, in whatever way, ...

Contents

Preface. Introduction. Acknowledgements. PART I. MEDICINE, SCIENCE, AND STATISTICS. I – 1. Terms and Concepts of Medicine. I – 2. Terms and Concepts of Science. I – 3. Terms and Concepts of Statistics. PART II. EPIDEMIOLOGICAL RESEARCH PROPER. II – 1. Introduction. II – 2. Introductory Terms and Concepts. II – 3. Terms and Concepts of Objects of Study. II – 4. Terms and Concepts of Methods of Study. PART III. META-EPIDEMIOLOGICAL CLINICAL RESEARCH. III – 1. Introduction. III – 2. Introductory Terms and Concepts. III – 3. Terms and Concepts of Objects of Study. II – 4. Terms and Concepts of Methods of Study. References. Index. Hierarchy of ...

Fields of Interest

Biomedicine, general; Epidemiology; Public Health; Medicine/Public Health, general; Biometrics; Biostatistics

Content Level

Lower undergraduate

Product category

Graduate/advanced undergraduate textbook

Available

Bibliography

2011, XVI, 175 p. Hardcover

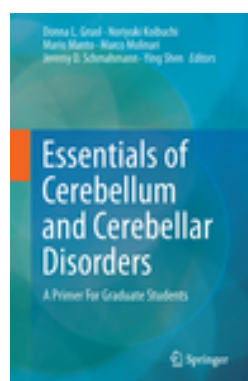
Medium Type

Book

Imprint

Springer

Order Quantity



ISBN : 978-3-319-24549-2

Gruol, D.L., Koibuchi, N., Manto, M., Molinari, M., Schmahmann, J.D., Shen, Y. (Eds.), The Scripps

Research Institute, La Jolla, CA

Essentials of Cerebellum and Cerebellar Disorders

A Primer For Graduate Students

- Easy to read and short chapters
- Synthesis of the major advancements in cerebellum physiology and pathology
- Strong international panel of editors

Essentials of the Cerebellum and Cerebellar Disorders is the first book of its kind written specifically for graduate students and clinicians. It is based on the 4-volume treatise, Handbook of the Cerebellum and Cerebellar Disorders (Springer, 2013), the definitive reference for scientists and neurologists in the field of cerebellar neurobiology. There have been fundamental advances in the basic science and clinical neurology of the cerebellum and its role in sensorimotor function and cognition. This monograph makes this large and expanding body of knowledge readily accessible to trainees and clinicians alike. The editors are world leaders ...

Contents

1 Introduction.- 2 Brief Historical Note.- 3 Anatomy And Histology Of The Cerebellum.- 4 Embryology And Development Of The Cerebellum.- 5 Cerebellar Circuits: Biochemistry, Neurotransmitters And Neuromodulation.- 6 Basic Physiology.- 7 Neuroimaging Of The Cerebellum.- 8 Functional Properties Of The Cerebellum.- 9 Cellular And Animal Models Of Cerebellar Disorders.- 10 Human Cerebellar Symptoms: From Movement To Cognition.- 11 Human Cerebellar Disorders: From Prenatal Period To Elderly.- 12 Therapies Of Cerebellar Ataxias.- Index

Fields of Interest

Gene Function; Neurosciences; Behavioral Sciences; Neurology

Content Level

Graduate

Product category

Graduate/advanced undergraduate textbook

Available

Bibliography

1st ed. 2016, X, 656 p. 112 illus., 61 illus. in color. Hardcover

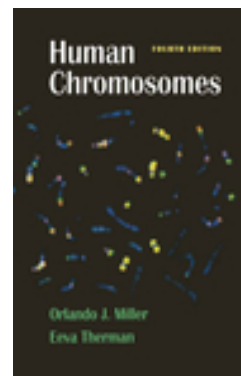
Medium Type

Book

Imprint

Springer

Order Quantity



ISBN : 978-0-387-95031-0

Miller, Orlando J., Therman, Eva

Human Chromosomes

This is the fourth edition of an acclaimed introductory textbook on the structure and function of human chromosomes. The explosion of information on human genetic diseases has meant that there is a greater need than ever for students, practising physicians, laboratory technicians, and researchers to have a concise, up-to-date summary of the normal and abnormal behavior of chromosomes. This book continues to fulfill that need, and is strengthened by the complete revision of material on the molecular genetics of chromosomes and chromosomal defects.

Contents

1 Origins and Directions of Human Cytogenetics.- 2 The Mitotic Cell Cycle.- 3 DNA Replication and Chromosome Reproduction.- 4 General Features of Mitotic Chromosomes.- 5 The Chemistry and Packaging of Chromosomes.- 6 Chromosome Bands.- 7 Molecular Correlates of Chromosome Bands.- 8 In Situ Hybridization.- 9 Main Features of Meiosis.- 10 Details of Meiosis.- 11 Meiotic Abnormalities: Abnormal Numbers of Chromosomes.- 12 Abnormal Phenotypes Due to Autosomal Aneuploidy or Polyploidy.- 13 Chromosome Structural Aberrations.- 14 The Causes of Structural Aberrations.- 15 Syndromes Due to Autosomal Deletions and Duplications.- 16 Clinical Importance ...

Fields of Interest

Human Genetics; Anatomy; Cell Biology; Life Sciences, general; Molecular Medicine

Content Level

Research

Product category

Graduate/advanced undergraduate textbook

Available

Bibliography

4th ed. 2001, XVI, 501 p. Hardcover

Medium Type

Book

Imprint

Springer

Order Quantity

ISBN : 978-1-4939-3057-9

da Poian, Andrea T., Castanho, Miguel A. R. B.,
Federal University of Rio de Janeiro, Rio de Janeiro,
Brazil

Integrative Human Biochemistry

A Textbook for Medical Biochemistry

- Elucidates the foundations of the molecular events of life
- Uses key historical experiments that opened up new concepts in Biochemistry to further illustrate how the human body functions at molecular level, helping students to appreciate how scientific knowledge emerges
- Provides realistic representations of molecules throughout the book

This book covers in detail the mechanisms for how energy is managed in the human body. The basic principles that elucidate the reactivity and physical interactions of matter are addressed and quantified with simple approaches. Three-dimensional representations of molecules are presented throughout the book so molecules can be viewed as unique entities in their shape and function. The book is focused on the molecular mechanisms of cellular processes in the context of human physiological situations such as fasting, feeding and physical exercise, in which metabolic regulation is highlighted. Furthermore the book uses key historical experiments ...

Contents

Introduction: Life is made of molecules!.- The Chemistry and Physics of Life.- The Families of Biological Molecules.- Introduction to Metabolism.- The Regulation of Metabolism;

Energy Conservation in Metabolism: The Mechanisms of ATP Synthesis.- Catabolism of the Major Biomolecules.- Metabolic Responses to Hyperglycemia.- Regulation and Integration of Metabolism During Hypoglycemia.- Regulation and Integration of Metabolism During Physical Activity.- Control of Body Weight and the Modern Metabolic Diseases.

Fields of Interest

Human Physiology; Medical Biochemistry;
Animal Biochemistry; Medicinal Chemistry

Content Level

Professional/practitioner

Product category

Undergraduate textbook

Available

Bibliography

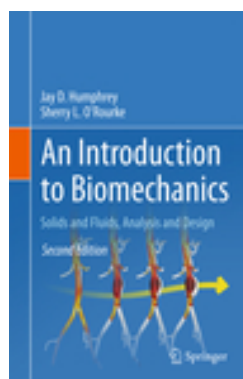
1st ed. 2015,XIX, 421 p. 315 illus., 282 illus. in color. Hardcover

Medium Type

Book

Imprint

Springer

Order Quantity

ISBN : 978-1-4939-2622-0

Humphrey, Jay D., O'Rourke, Sherry L., Yale
University, New Haven, CT, USA

An Introduction to Biomechanics

Solids and Fluids, Analysis and Design

- Follows up to the popular first edition with updated material, exercises and approaches
- Encourages students to develop an intuitive, "big-picture" approach to biomechanics and problem-solving
- Focuses on biomechanics from a continuum mechanics perspective

This book covers the fundamentals of biomechanics. Topics include bio solids, biofluids, stress, balance and equilibrium. Students are encouraged to contextualize principles and exercises within a "big picture" of biomechanics. This is an ideal book for undergraduate students with interests in biomedical engineering.

Contents

1 Introduction.-2 Stress, Strain, and Constitutive Relations.- 3 Equilibrium, Universal Solutions, and Inflation.- 4 Extension and Torsion.- 5 Beam Bending and Column Buckling.- 6 Some Nonlinear Problems.- 7 Stress, Motion, and Constitutive Relations.-8 Fundamental Balance Relations.-9 Some Exact Solutions.-10 Control Volume and Semi-empirical Method.-11 Coupled Solid-fluid Problems.-12 Epilogue

Fields of Interest

Human Physiology; Biomedical Engineering and Bioengineering; Theoretical and Applied Mechanics; Biochemical Engineering

Content Level

Upper undergraduate

Product category

Graduate/advanced undergraduate textbook

Available

Bibliography

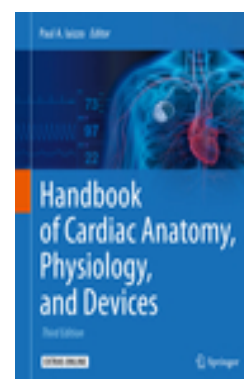
2nd ed. 2015,XXVI, 692 p. 298 illus. Hardcover

Medium Type

Book

Imprint

Springer

Order Quantity

ISBN : 978-3-319-19463-9

Iaizzo, Paul A. (Ed.), University of Minnesota
Department of Surgery, Minneapolis, MN, USA

Handbook of Cardiac Anatomy,

Physiology, and Devices

- Includes companion videos that visualize functional cardiac anatomy jointly developed by the University of Minnesota and the Cardiac Rhythm Management Division at Medtronic, Inc.
- Exhaustively reviews the latest medical devices for diseases of the heart
- Provides a comprehensive resource of information on the anatomic features and underlying physiologic mechanisms of the heart

This book covers the latest information on the anatomic features, underlying physiologic mechanisms, and treatments for diseases of the heart. Key chapters address animal models for cardiac research, cardiac mapping systems, heart-valve disease and genomics-based tools and technology. Once again, a companion of supplementary videos offer unique insights into the working heart that enhance the understanding of key points within the text. Comprehensive and state-of-the-art, the Handbook of Cardiac Anatomy, Physiology and Devices, Third Edition provides clinicians and biomedical engineers alike with the authoritative information and background ...

Contents

Foreword.- Preface.- Part I. Introduction.- 1. General Features of the Cardiovascular System.- Part II. Anatomy.- 2. Attitudinally Correct Cardiac Anatomy.- 3. Cardiac Development.- 4. Anatomy of the Thoracic Wall, Pulmonary Cavities and Mediastinum.- 5. Anatomy of the Human Heart.- 6. Comparative Cardiac Anatomy.- 7. Detailed Anatomical and Functional Features of the Cardiac Valves.- 8. The Coronary Vascular System and Associated Medical Devices.- 9. The Pericardium.- 10. Congenital Cardiac Anatomy and Operative Correction.- 11. Mechanical Circulatory Support Devices Pediatric Patients.- Part III. Physiology and Assessment.- 12. Cellular ...

Fields of Interest

Human Physiology; Cardiology; Biomedical Engineering and Bioengineering; Angiology; Pathology; Cardiac Surgery

Content Level

Professional/practitioner

Product category

Graduate/advanced undergraduate textbook

Available

Bibliography

3rd ed. 2015,XI, 817 p. 599 illus., 374 illus. in color. Hardcover

Medium Type

Book

Imprint

Springer

Order Quantity



ISBN : 978-0-387-49311-4

Knudson, Duane, Chico, CA

Fundamentals of Biomechanics

- Nine principles of biomechanics that are developed throughout the text. These principles provide an applied structure for biomechanical concepts, and the application of each principle is fully explored in several chapters
- The text continues the traditional approach of providing many human movement examples as biomechanical concepts are presented
- Practical application boxes that highlight in-depth discussions of applications of biomechanics

Fundamentals of Biomechanics, 2nd edition, presents a clear, conceptual approach to understanding biomechanics within the context of the qualitative analysis of human movement. The philosophy is to blend up-to-date biomechanical knowledge (with extensive referencing for student study) with professional application knowledge. This true application of biomechanics in real-world settings is missing in previous biomechanics texts. The text provides real-world examples of the application of biomechanics several ways. Like other texts, human movement examples and problems are discussed to help teach biomechanical variables and concepts. This text, ...

Contents

to Biomechanics of Human Movement.- Fundamentals of Biomechanics and Qualitative Analysis.- Biological/Structural Bases.- Anatomical Description and Its Limitations.- Mechanics of the Musculoskeletal System.- Mechanical Bases.- Linear and Angular Kinematics.- Linear Kinetics.- Angular Kinetics.- Fluid Mechanics.- Applications of Biomechanics in Qualitative

Analysis.- Applying Biomechanics in Physical Education.- Applying Biomechanics in Coaching.- Applying Biomechanics in Strength and Conditioning.- Applying Biomechanics in Sports Medicine and Rehabilitation.

Fields of Interest

Human Physiology; Biological and Medical Physics, Biophysics; Biomedical Engineering and Bioengineering; Sports Medicine

Content Level

Graduate

Product category

Graduate/advanced undergraduate textbook

Available

Bibliography

2nd ed. 2007,XII, 354 p. With online files/ update. Hardcover

Medium Type

Book w. online files / update

Imprint

Springer

Order Quantity



ISBN : 978-3-7091-0714-0

Lammert, Eckhard, Zeeb, Martin (Eds.), Heinrich Heine University Düsseldorf, Düsseldorf, Germany

Metabolism of Human Diseases

Organ Physiology and Pathophysiology

- First book of this kind describing principles of metabolism in key organs of the human body
- Comprehensive and detailed summary of organ physiological and pathological functioning with focus on biochemical metabolism
- Clearly structured and sorted

"Metabolism of Human Diseases" examines

the physiology of key organs (e.g. brain, eye, lung, heart, blood vessels, blood, immune system, gastrointestinal tract, pancreas, liver, fat tissue, kidney, reproductive system, teeth, bone and joints) and how defective metabolism and signaling pathways within these organs contribute to common human diseases. The latter include depression, schizophrenia, epilepsy, Parkinson's disease, Alzheimer's disease, migraine, multiple sclerosis, Down syndrome, macular degeneration, glaucoma, asthma, COPD, pneumonia, atherosclerotic heart disease, heart failure, stroke, varicose veins, Sickle cell disease, ...

Contents

Introduction.- Brain: Overview.- Major depressive disorder.- Schizophrenia.- Epilepsy.- Parkinson's disease.- Alzheimer's disease.- Migraine and cluster headache.- Multiple sclerosis.- Down syndrome.- Eye: Overview.- Age-related macular degeneration.- Glaucoma.- Teeth and bones: Overview.- Dental caries.- Osteoporosis.- Joints: Overview.- Osteoarthritis.- Rheumatoid arthritis.- Gastrointestinal tract: Overview.- Peptic ulcer disease.- Gastroenteritis.- Lactose intolerance.- Colorectal cancer.- Pancreas: Overview.- Diabetes mellitus.- Liver: Overview.- Cirrhosis.- Fat tissue: Overview.- Metabolic syndrome.- Lung: Overview.- Asthma.- ...

Fields of Interest

Human Physiology; Metabolic Diseases; Biochemistry, general; Metabolomics

Content Level

Graduate

Product category

Graduate/advanced undergraduate textbook

Available

Bibliography

2014,IX, 416 p. 112 illus., 21 illus. in color. Softcover

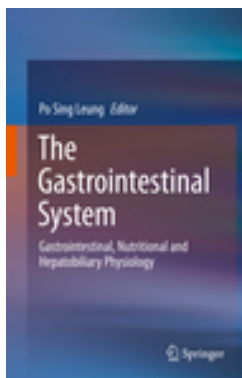
Medium Type

Book

Imprint

Springer

Order Quantity



ISBN : 978-94-017-8770-3

Leung, Po Sing (Ed.), School of Biomedical Sciences, Hong Kong, People's Republic of China

The Gastrointestinal System

Gastrointestinal, Nutritional and Hepatobiliary Physiology

- Comprehensive yet concise concepts of GI physiology
- A wide range of scenario-based clinical case studies
- Multiple choice questions for review examination

Gastrointestinal (GI) physiology is a fundamental subject that is indispensable not only for undergraduate but also for graduate courses. The audience include, but are not limited to, medical, pharmacy, nursing, human biology, Chinese medicine, and science students, as well as other health-related subject students. The overall objectives of this textbook are to present basic concepts and principles of GI physiology and, more importantly, to convey an understanding of how to apply this knowledge to abnormal GI physiology in the clinical context. As such, the basic knowledge of GI physiology and its application in the form of clinical case ...

Contents

Regulation of Gastrointestinal Functions.- Gastrointestinal Motility.- Gastric Physiology.- Exocrine Pancreatic Physiology.- Intestinal Water and Electrolyte Transport.- Digestion and Absorption of Carbohydrates and Proteins.- Digestion and Absorption of Dietary Triglycerides.- Digestion and Absorption of Other Dietary Lipids.- Absorption of Water Soluble Vitamins and Minerals.- Structure, Functional Assessment and Blood Flow.- Protein Synthesis and Nutrient Metabolism.- Biotransformation, Elimination and Bile Acid Metabolism.

Fields of Interest

Human Physiology; Gastroenterology

Content Level

Upper undergraduate

Product category

Graduate/advanced undergraduate textbook

Available

Bibliography

2014,XIII, 364 p. 161 illus., 108 illus. in color. Hardcover

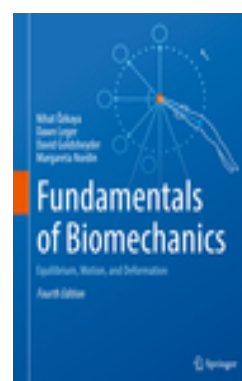
Medium Type

Book

Imprint

Springer

Order Quantity



ISBN : 978-3-319-44737-7

Özkaya, N., Leger, D., Goldsheyder, D., Nordin, M., Deceased (1956–1998), Bristol, CT, USA

Fundamentals of Biomechanics

Equilibrium, Motion, and Deformation

- Introduces the fundamental concepts, principles, and methods that must be understood to begin the study of biomechanics
- Reinforces basic principles of biomechanics with repetitive exercises in class and homework assignments given throughout the textbook
- Includes over 100 new problem sets with solutions and illustrations

This textbook integrates the classic fields of mechanics—statics, dynamics, and strength of materials—using examples from biology and medicine. The book is excellent for teaching either undergraduates in biomedical engineering programs or health care professionals studying biomechanics at the graduate level. Extensively revised from a successful third edition, Fundamentals of Biomechanics features a wealth of clear illustrations, numerous worked examples, and many problem sets. The book provides the quantitative perspective missing from more descriptive texts, without requiring an advanced background in mathematics. It will

be welcomed for ...

Contents

Preface.- 1. Introduction.- 2. Force Vector.- 3. Moment And Torque Vectors.- 4. Statics: Systems in Equilibrium.- 5. Applications of Statics to Biomechanics.- 6. Introduction to Dynamics.- 7. Linear Kinematics.- 8. Linear Kinetics.- 9. Angular Kinematics.- 10. Angular Kinetics.- 11. Impulse and Momentum.- 12. Introduction to Deformable Body Mechanics.- 13. Stress & Strain.- 14. Multiaxial Deformations & Stress Analyses.- 15. Mechanical Properties of Biological Tissues.- Appendix A. Plane Geometry.- Appendix B. Vector Algebra.- Appendix C. Calculus.- Index.

Fields of Interest

Human Physiology; Sports Medicine; Biomedical Engineering and Bioengineering; Biomedical Engineering/Biotechnology; Orthopedics; Rehabilitation

Content Level

Upper undergraduate

Product category

Graduate/advanced undergraduate textbook

Available

Bibliography

4th ed. 2017,XV, 454 p. Hardcover

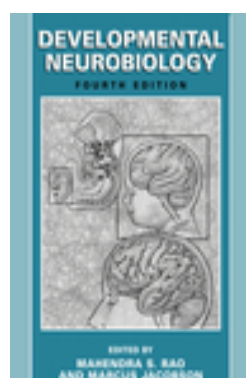
Medium Type

Book

Imprint

Springer

Order Quantity



ISBN : 978-0-306-48330-1

Rao, Mahendra S., Jacobson, Marcus (Eds.), Life Technologies, Frederick, MD, USA

Developmental Neurobiology

• Serves as an up-to-date survey of cellular and molecular events that contribute to the

assembly of the vertebrate nervous system

- Will serve as readily tractable source for advanced undergraduate neuroscience majors and advanced-level graduate students
- Chapters include a mixture of historical content and descriptions from both the vertebrate and invertebrate literature that best illustrate specific aspects of development

The book is presented as a timeline of development with emphasis on human and vertebrate biology. Fully documented examples exhaustively illustrate general principles in viewing development of structure and function as an integrated unity. All chapters have been extensively revised by noted international specialists. The book incorporates the most recent studies and research, including advances in stem cells and genomics. New chapters on aging and glial biology have been added. Continuity with previous editions is maintained by retention of the historical perspective for which this title is known. The book stresses the universal aspects of ...

Contents

Making a Neural Tube: Neural Induction and Neurulation.- Cell Proliferation in the Developing Mammalian Brain.- Anteroposterior and Dorsoventral Patterning.- Neural Crest and Cranial Ectodermal Placodes.- Neurogenesis.- The Oligodendrocyte.- Astrocyte Development.- Neuronal Migration in the Developing Brain.- Guidance of Axons and Dendrites.- Synaptogenesis.- Programmed Cell Death.- Regeneration and Repair.- Developmental Mechanisms in Aging and Age-Related Diseases of the Nervous System.- Beginnings of the Nervous System.

Fields of Interest

Neurosciences; Anatomy; Neurobiology

Content Level

Graduate

Product category

Graduate/advanced undergraduate textbook

Available

Bibliography

4th ed. 2005,XII, 424 p. 52 illus. in color. Hardcover

Medium Type

Book

Imprint

Springer

Order Quantity



ISBN : 978-1-4614-6485-3

Crommelin, D.J.A., Sindelar, R.D., Meibohm, B. (Eds.), Utrecht University, Utrecht, The Netherlands

Pharmaceutical Biotechnology

Fundamentals and Applications

- Explains the basic science and the applications of biotechnology-derived pharmaceuticals
- Serves as a complete one-stop source for undergraduate pharmacists, pharmaceutical science students, and for those in the pharmaceutical industry
- Includes additional coverage on the newer approaches

This introductory text explains both the basic science and the applications of biotechnology-derived pharmaceuticals, with special emphasis on their clinical use. It serves as a complete one-stop source for undergraduate/graduate pharmacists, pharmaceutical science students, and for those in the pharmaceutical industry. The Fourth Edition will completely update the previous edition, and will also include additional coverage on the newer approaches such as oligonucleotides, siRNA, gene therapy and nanotech.

Contents

Molecular Biotechnology: From DNA sequence to therapeutic protein.- Biophysical and Biochemical Analysis of Recombinant Proteins.- Production and purification of Recombinant Proteins.- Formulation of Biotech Products, including Biopharmaceutical Considerations.- Pharmacokinetics and Pharmacodynamics of Peptide and Protein Therapeutics.- Immunogenicity of Therapeutic Proteins.- Monoclonal Antibodies: From Structure to Therapeutic Application.- Genomics, Other "Omics" Technologies, Personalized Medicine and Additional Biotechnology-Related Techniques.- Dispensing Biotechnology Products: Handling, Professional Education and Product ...

Fields of Interest

Pharmaceutical Sciences/Technology; Biomedicine, general

Content Level

Upper undergraduate

Product category

Undergraduate textbook

Available

Bibliography

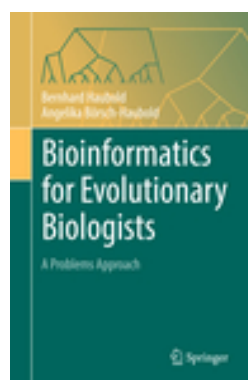
4th ed. 2013,XXI, 544 p. 240 illus., 222 illus. in color. Hardcover

Medium Type

Book

Imprint

Springer

[Order Quantity](#)

ISBN : 978-3-319-67394-3

Haubold, Bernhard, Börsch-Haubold, Angelika,
Max-Planck-Institute for Evolutionary Biology, Plön,
Germany

Bioinformatics for Evolutionary Biologists**A Problems Approach**

- Covers fundamental aspects of sequence analysis in evolutionary biology, such as sequence alignment, phylogeny reconstruction, and coalescent simulation
- Covers the material exclusively through 400 computer problems to enable learning by doing
- Offers solutions to all problems to encourage self-study at a pace determined by the student

This self-contained textbook covers fundamental aspects of sequence analysis in evolutionary biology, including sequence alignment, phylogeny reconstruction, and coalescent simulation. It addresses these aspects through a series of over 400 computer problems, ranging from elementary to research level to enable learning by doing. Students solve the problems in the same computational

environment used for decades in science – the UNIX command line. This is available on all three major operating systems for PCs: Microsoft Windows, Mac-OSX, and Linux. To learn using this powerful system, students analyze sample sequence data by applying generic ...

Contents

The UNIX Command Line.- Constructing and Applying Optimal Alignments.- Exact Matching.- Fast Alignment.- Evolution between Species: Phylogeny.- Evolution within Populations.- Additional Topics.

Fields of Interest

Bioinformatics; Evolutionary Biology;
Computational Biology/Bioinformatics;
Computer Appl. in Life Sciences

Content Level

Graduate

Product category

Graduate/advanced undergraduate textbook

Available

Bibliography

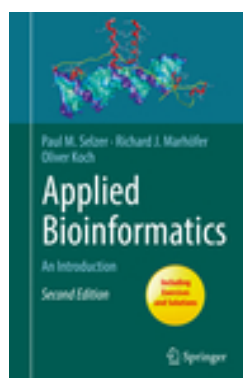
XIII, 318 p. 44 illus., 22 illus. in color. Hardcover

Medium Type

Book

Imprint

Springer

[Order Quantity](#)

ISBN : 978-3-319-68299-0

Selzer, P.M., Marhöfer, R.J., Koch, O., Boehringer
Ingelheim, Animal Health, Ingelheim am Rhein,
Germany

Applied Bioinformatics**An Introduction**

- A fully updated and revised new edition of this textbook

- Comprehensive and clearly structured introduction
- Includes practical examples with exercises and solutions

This book introduces readers to the basic principles of bioinformatics and the practical application and utilization of computational tools, without assuming any prior background in programming or informatics. It provides a coherent overview of the complex field and focuses on the implementation of online tools, genome databases and software that can benefit scientists and students in the life sciences. Training tutorials with practical bioinformatics exercises and solutions facilitate the understanding and application of such tools and interpretation of results. In addition, a glossary explains terminology that is widely used in the field. ...

Contents

The Biological Foundations of Bioinformatics.- Biological databases.- Sequence Comparisons and Sequence-Based Database Searches.- The decoding of eukaryotic genomes.- Protein Structures and Structure-Based Rational Drug Design.- The Functional Analysis of Genomes.- Comparative genome analyses.

Fields of Interest

Bioinformatics; Computer Appl. in Life Sciences; Computational Biology/
Bioinformatics; Computer Applications in Chemistry

Content Level

Graduate

Product category

Graduate/advanced undergraduate textbook

Available

Bibliography

2nd ed. 2018,XVI, 183 p. 76 illus., 69 illus. in color. Softcover

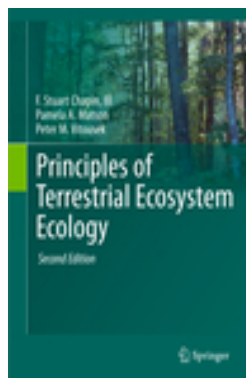
Medium Type

Book

Imprint

Springer

[Order Quantity](#)



ISBN : 978-1-4419-9503-2

Chapin III, F.S., Matson, P.A., Vitousek, P., University of Alaska Inst. Arctic Biology, Fairbanks, AK, USA

Principles of Terrestrial Ecosystem Ecology

- This is the second edition of the bestselling textbook Principles of Terrestrial Ecosystem Ecology
- Brings new expertise in many of the conceptual advances in ecosystem ecology, including the interactions among element cycles, the scaling of ecosystem processes in space and time, and effects of global human actions on the biosphere
- Highlights new ideas, information, citations, and appropriate figures to accommodate advances that have occurred since the first edition

Ecosystem ecology regards living organisms, including people, and the elements of their environment as components of a single integrated system. The comprehensive coverage in this textbook examines the central processes at work in terrestrial ecosystems, including their freshwater components. It traces the flow of energy, water, carbon, and nutrients from their abiotic origins to their cycles through plants, animals, and decomposer organisms. As well as detailing the processes themselves, the book goes further to integrate them at various scales of magnitude—those of the ecosystem, the wider landscape and the globe. It synthesizes recent ...

Contents

Preface.- I. CONTEXT.- The Ecosystem Concept.- Earth's Climate System.- Geology, Soils, and Sediments.- II. MECHANISMS.- Water and Energy Balance.- Carbon Inputs to Ecosystems.- Plant Carbon Budgets.- Terrestrial Decomposition and Ecosystem Carbon Budgets.- Plant Nutrient Use.- Nutrient Cycling.- Trophic Dynamics.- Species Effects on Ecosystem Processes.- III. PATTERNS.- Temporal Dynamics.- Landscape Heterogeneity and Ecosystem Dynamics.- IV. INTEGRATION.- Changes in the Earth System.- Managing and Sustaining Ecosystem.- Abbreviations.- Glossary.- References.

Fields of Interest

Ecology; Terrestrial Ecology; Biodiversity; Ecosystems; Plant Ecology

Content Level

Graduate

Product category

Undergraduate textbook

Available

Bibliography

2nd ed. 2012,XV, 529 p. 250 illus., 48 illus. in color. Hardcover

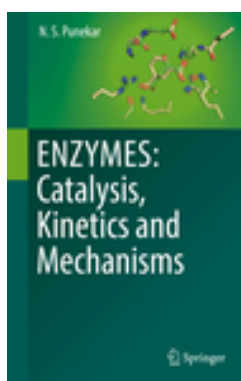
Medium Type

Book

Imprint

Springer

Order Quantity



ISBN : 978-981-13-0784-3

Punekar, N.S., Indian Institute of Technology Bombay, Mumbai, India

ENZYMES: Catalysis, Kinetics and Mechanisms

- This book caters the need of the students studying Biochemistry, Enzymology or Industrial Microbiology as part of their Biotechnology/ Life Sciences course
- The book synchronizes two broad mechanistic facets of enzymology namely, the chemical and the kinetic
- It discusses on how to begin experiments with an enzyme and subsequently analyze the data collected

This enzymology textbook for graduate and advanced undergraduate students covers the syllabi of most universities where this subject is regularly taught. It focuses on the synchrony between the two broad mechanistic facets of enzymology: the chemical and the kinetic, and also highlights the synergy between enzyme structure and

mechanism. Designed for self-study, it explains how to plan enzyme experiments and subsequently analyze the data collected. The book is divided into five major sections: 1] Introduction to enzymes, 2] Practical aspects, 3] Kinetic Mechanisms, 4] Chemical Mechanisms, and 5] Enzymology Frontiers. Individual concepts are ...

Contents

Part I: Enzyme catalysis - a perspective.- Enzymes -Their place in Biology.- Enzymes - Historical aspects.- Exploiting enzymes - Technology.- On enzyme nomenclature and classification.- Hallmarks of an enzyme catalyst.- Origins of enzyme catalytic power.- Origins of enzyme catalytic power.- Which enzyme uses what trick? Some remarks.- Structure and catalysis: Conformational flexibility and protein motion.- Part II: Enzyme kinetic practice and measurements.- Chemical kinetics - Fundamentals.- Concepts of equilibrium and steady-state.- ES complex and pre-steady-state kinetics.- Principles of enzyme assays.- Good kinetic practices.- ...

Fields of Interest

Enzymology; Protein-Ligand Interactions; Biomedical Engineering/Biotechnology; Applied Microbiology; Protein Structure

Content Level

Graduate

Product category

Graduate/advanced undergraduate textbook

Available

Bibliography

1st ed. 2018,XXIII, 562 p. 263 illus., 76 illus. in color. Hardcover

Medium Type

Book

Imprint

Springer

Order Quantity



ISBN : 978-3-319-54062-7

Bleidorn, Christoph, Spanish National Research Council (CSIC), Madrid, Spain

Phylogenomics

An Introduction

- Highly readable overview on the main theoretical and practical aspects of Phylogenomics
- Particular focus on the latest sequencing technologies
- Must-have book for students and young researchers interested in evolutionary genomics

This unique textbook provides a clear and concise overview of the key principles of the complex field of phylogenomics, with a particular focus on sequencing technologies that are crucial to studying and understanding interrelations in evolutionary genomics. It includes chapters dedicated to the analysis of nucleotide sequences using assembling and alignment methods and also discusses the main strategies for phylogenetic studies, systematic errors and their correction. This highly readable textbook is intended for graduate students and young researchers with an interest in phylogenetics and evolutionary developmental biology.

Contents

1. Genomes.- 01.1 Prokaryotes vs. Eukaryotes.- 01.2 Genome Structure.- 01.3 Genome Sizes.- 01.4 Human Genome and Ancient DNA (Neandertaler, Denisova).- 2. Genomes of Organelles.- 02.1 Mitochondria.- 02.2 Plastids.- 02.3 Outlook Obligate Endosymbionts.- 3. Transcriptomes.- 03.1 mRNA.- 03.2 Transcripts.- 03.3 Expression Level.- 03.4 Alternative Splicing.- 4. Sequencing Techniques.- 04.1 Sanger.- 04.2 Illumina.- 04.3 454.- 04.4 PacBio.- 04.5 Outlook Nanopore Sequencing.- 5. Genome Sequencing Strategies.- 05.1 Whole Genome Shotgun.- 05.2 RADseq.- 05.3 Target Enrichment.- 05.4 RNAseq.- 6. Assembly and Mapping.- 06.1 Assembling Strategies (kmer vs ...

Fields of Interest

Evolutionary Biology; Human Genetics; Bioinformatics; Microbial Genetics and Genomics; Animal Genetics and Genomics

Content Level

Graduate

Product category

Graduate/advanced undergraduate textbook

Available

Bibliography

1st ed. 2017,XIII, 222 p. 89 illus., 87 illus. in color. Hardcover

Medium Type

Book

Imprint

Springer

Order Quantity



ISBN : 978-1-4939-9619-3

Spink, John W., Michigan State University, Okemos, MI, USA

Food Fraud Prevention

Introduction, Implementation, and Management

- Puts forth a holistic, all-encompassing approach to food fraud
- Provides an overview of food fraud, including economically motivated adulteration, intentional adulteration, and counterfeiting
- Brings to the public eye the relatively new concept of food fraud prevention

This textbook provides both the theoretical and concrete foundations needed to fully develop, implement, and manage a Food Fraud Prevention Strategy. The scope of focus includes all types of fraud (from adulterant-substances to stolen goods to counterfeits) and all types of products (from ingredients through to finished goods at retail). There are now broad, harmonized, and thorough regulatory and standard certification requirements for the food manufacturers, suppliers, and retailers. These requirements create a need for a more focused and systematic approach to understanding the root cause, conducting vulnerability assessments, and ...

Contents

Chapter 1: Introduction (Part 1 of 2): Food Fraud Definitions and Scope.- Chapter 2: Introduction (Part 2 of 2): Basic Prevention Concepts.- Chapter 3: Food Fraud Prevention Overview (Part 1 of 3): Basics.- Chapter 4: Food Fraud Prevention Overview (Part 2 of 3): The Approach.- Chapter 5: Food Fraud

Prevention Overview (Part 3 of 3): The Implementation.- Chapter 6: Business Decision Making and ERM/COSO.- Chapter 7: Criminology Theory (Part 1 of 2): Foundational Concepts.- Chapter 8: Criminology Theory (Part 2 of 2): Application Review.- Chapter 9: Supply Chain Management (Part 1 of 2): Fundamentals.- Chapter 10: Supply Chain Management (Part ...

Fields of Interest

Food Microbiology; Food Science; Criminal Law and Criminal Procedure Law; Medicine/ Public Health, general

Content Level

Upper undergraduate

Product category

Monograph

Available

Bibliography

1st ed. 2019,LIV, 627 p. 117 illus., 109 illus. in color.(Practical Approaches) Hardcover

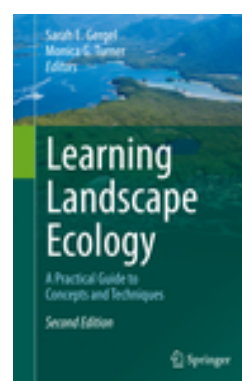
Medium Type

Book

Imprint

Springer

Order Quantity



ISBN : 978-1-4939-6372-0

Gergel, Sarah E., Turner, Monica G. (Eds.), University of British Columbia, Department of Forest and Conservation Sciences, Vancouver, BC, Canada

Learning Landscape Ecology

A Practical Guide to Concepts and Techniques

- Utilizes examples, data and authors around the world to communicate to a more global audience
- Provides a user-friendly translation of challenging quantitative techniques such as

graph theory, spatial statistics, R software, network analysis, social-ecological systems, and object-oriented approaches within the context of landscape ecology

• Labs incorporate the latest scientific understanding of ecosystem services, resilience, social-ecological landscapes, and even seascapes

This title meets a great demand for training in spatial analysis tools accessible to a wide audience. Landscape ecology continues to grow as an exciting discipline with much to offer for solving pressing and emerging problems in environmental science. Much of the strength of landscape ecology lies in its ability to address challenges over large areas, over spatial and temporal scales at which decision-making often occurs. As the world tackles issues related to sustainability and global change, the need for this broad perspective has only increased. Furthermore, spatial data and spatial analysis (core methods in landscape ecology) are ...

Contents

Preface.- Acknowledgements.- Advice for Instructors.- Introduction to Remote Sensing.- Historical Aerial Photography for Landscape Analysis.- Citizen Science for Assessing Landscape Change.- Understanding Landscape Metrics.- Scale Detection with Semivariograms and Autocorrelograms (with R option).- Characterizing Categorical Map Patterns Using Neutral Landscape Models (with QRULE and R).- What Constitutes a Significant Difference in Landscape Pattern? (using R).- Modeling Landscape Change with Markov Models (with R option).- Simulating Management Actions and Their Effect on Forest Landscape Pattern (with Harvest Lite).- Regional and ...

Fields of Interest

Landscape Ecology; Landscape/Regional and Urban Planning; Terrestrial Ecology; Monitoring/Environmental Analysis; Theoretical Ecology/Statistics

Content Level

Professional/practitioner

Product category

Graduate/advanced undergraduate textbook

Available

Bibliography

2nd ed. 2017,XVIII, 350 p. 64 illus., 25 illus. in color. Softcover

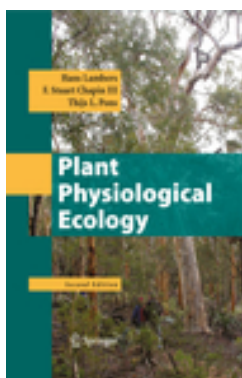
Medium Type

Book

Imprint

Springer

Order Quantity



ISBN : 978-1-4939-3705-9

Lambers, H., Chapin III, F.S., Pons, T.L., University of Western Australia Fac. Agriculture, Crawley, WA, Australia

Plant Physiological Ecology

- Renowned textbook suitable for plant ecology, plant physiology, and plant molecular biology courses
- Notable for its integration of molecular-, whole plant-, and ecosystem-level processes
- Features boxed entries that provide extended discussions of selected issues, a glossary, and an extensive bibliography

Box 9E. 1 Continued FIGURE 2. The C–S–R triangle model (Grime 1979). The strategies at the three corners are C, competi- winning species; S, stress-tolerating s- cies; R, ruderalspecies. Particular species can engage in any mixture of these three primary strategies, and the m- ture is described by their position within the triangle. comment briefly on some other dimensions that Grime's (1977) triangle (Fig. 2) (see also Sects. 6. 1 are not yet so well understood. and 6. 3 of Chapter 7 on growth and allocation) is a two-dimensional scheme. A C—S axis (Com- titution-winning species to Stress-tolerating spe- Leaf Economics Spectrum cies) ...

Contents

Assumptions and Approaches.- Photosynthesis, Respiration, and Long-Distance Transport.- Respiration.- Long-Distance Transport of Assimilates.- Plant Water Relations.- Leaf Energy Budgets: Effects of Radiation and Temperature.- Effects of Radiation and Temperature.- Scaling-Up Gas Exchange and Energy Balance from the Leaf to the Canopy Level.- Mineral Nutrition.- Growth and Allocation.- Life Cycles: Environmental Influences and Adaptations.- Biotic Influences.- Ecological Biochemistry: Allelopathy and Defense Against Herbivores.- Effects of Microbial Pathogens.- Parasitic Associations.- Interactions Among Plants.- Carnivory.- Role in ...

Fields of Interest

Plant Ecology; Plant Physiology; Plant Sciences; Ecology; Plant Anatomy/ Development; Ecosystems

Content Level

Graduate

Product category

Graduate/advanced undergraduate textbook

Available

Bibliography

2nd ed. 2008,XXIX, 605 p. Softcover

Medium Type

Book (Paperback Initiative)

Imprint

Springer

Order Quantity



ISBN : 978-3-662-56231-4

Schulze, E.-D., Beck, E., Buchmann, N., Clemens, S., Müller-Hohenstein, K., Scherer-Lorenzen, M., Max Planck Institute for Biogeochemistry, Jena, Germany

Plant Ecology

- Carefully structured and well written
- Presents even complex issues in an easily understandable way
- Includes more than 500 high-quality illustrations, mostly in colour

This completely updated and revised second edition provides a unique and up-to-date treatment of all aspects of plant ecology, making it an ideal textbook and reference work for students, researchers and practitioners. More than 500 high-quality images and drawings, mostly in colour, aid readers' understanding of various key topics, while the clear structure and straightforward style make it user friendly and particularly useful for students. Written by leading experts, it offers authoritative information, including relevant references. While Plant

Ecology primarily addresses graduate students in biology and ecology, it is also a valuable ...

Contents

Introduction.- General Themes of Molecular Stress Physiology.- Light.- Temperature.- Oxygen Deficiency.- Water Deficiency (Drought).- Adverse Soil Mineral Availability.- Biotic Stress.- Thermal Balance of Plants and Plant Communities.- Water Relations.- Nutrient Relations.- Carbon Relations.- Ecosystem Characteristics.- Approaches to Study Terrestrial Ecosystems.- Approaches to Model Processes at the Ecosystem Level.- Biogeochemical Fluxes in Terrestrial Ecosystems.- Development of Plant Communities in Time.- Spatial Distribution of Plants and Plant Communities.- Interactions between Plants, Plant Communities and the Abiotic and Biotic ...

Fields of Interest

Plant Ecology; Plant Physiology; Plant Biochemistry; Plant Genetics and Genomics; Climate Change

Content Level

Research

Product category

Graduate/advanced undergraduate textbook

Available

Bibliography

2nd ed. 2019, XXI, 926 p. 580 illus., 527 illus. in color. Hardcover

Medium Type

Book

Imprint

Springer

Order Quantity



ISBN : 978-981-13-2022-4

Bhatla, Satish C, A. Lal, Manju, University of Delhi, New Delhi, India

Plant Physiology, Development and Metabolism

- Conceptual learning
- Historical information included
- Highly illustrated to facilitate learning

This book focuses on the fundamentals of plant physiology for undergraduate and graduate students. It consists of 34 chapters divided into five major units. Unit I discusses the unique mechanisms of water and ion transport, while Unit II describes the various metabolic events essential for plant development that result from plants' ability to capture photons from sunlight, to convert inorganic forms of nutrition to organic forms and to synthesize high energy molecules, such as ATP. Light signal perception and transduction works in perfect coordination with a wide variety of plant growth regulators in regulating various plant developmental ...

Contents

Part I TRANSPORT OF WATER AND NUTRIENTS.- Chapter 1. Plant water relations.- Chapter 2. Mineral nutrition.- Chapter 3. Water and soluble transport.- Part II METABOLISM.- Chapter 4. Concepts in metabolism.- Chapter 5. Photosynthesis.- Chapter 6. Photosynthate translocation.- Chapter 7. Respiration.- Chapter 8. ATP synthesis.- Chapter 9. Metabolism of storage carbohydrates.- Chapter 10. Lipid metabolism.- Chapter 11. Nitrogen metabolism.- Chapter 12. Sulphur, phosphorus and iron metabolism.- Part III DEVELOPMENT.- Chapter 13. Light perception and transduction.- Chapter 14. Plant growth regulators.- Chapter 15. Auxins.- Chapter 16. Cytokinins.- ...

Fields of Interest

Plant Physiology; Plant Anatomy/ Development; Plant Ecology; Plant Breeding/ Biotechnology; Plant Genetics and Genomics

Content Level

Upper undergraduate

Product category

Graduate/advanced undergraduate textbook

Available

Bibliography

1st ed. 2018, XXXIV, 1237 p. 707 illus., 431 illus. in color. Hardcover

Medium Type

Book

Imprint

Springer

Order Quantity