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Biodefense in the Age of Synthetic Biology Quantitative Biology Mathematics and 21st Century Biology Synthetic Biology and iGEM: Techniques, Development and Safety Concerns Systems Biology Approaches: Prevention, Diagnosis, and Understanding Mechanisms of Complex Diseases Human Biology and History Conservation Biology for All The Classification of Sex Climate Change Biology Bringing Biology to Life The Biology of Clinical Encounters College Biology II Biology Trending Research in Computational Molecular Biology A History of Biology Queen's Quarterly Biology Bulletin of the Academy of Sciences of the USSR. Current Themes in Theoretical Biology Synthetic Biology Inseminations 1st World Congress on Electroporation and Pulsed Electric Fields in Biology, Medicine and Food & Environmental Technologies The Journal of Education Nanotechnology Research Directions for Societal Needs in 2020 Physical and Chemical Mechanisms in Molecular Radiation Biology Fish Reproductive Biology Haunting Biology How to prepare for the biology olympiad Research Priorities for Single Species Conservation Biology Cancer Systems Biology, Bioinformatics and Medicine Mathematical Models in Population Biology and Epidemiology Biology and medicine; training, education, and information; Plowshare; isotopes development; physical research; communities; and AEC administrative programs Debating Biology Biologie und Epidemiologie der Hormonersatztherapie - Biology and Epidemiology of Hormone Replacement Therapy Research Strategies in Human Biology Oceanography and Marine Biology The Past, Present, and Future of Integrated History and Philosophy of Science Automated Reasoning for Systems Biology and Medicine Plant Biology and Biotechnology Immunological Recognition of Peptides in Medicine and Biology Computational Biology

Biodefense in the Age of Synthetic Biology 2019-01-05 scientific advances over the past several decades have accelerated the ability to engineer existing organisms and to potentially create novel ones not found in nature synthetic biology which collectively refers to concepts approaches and tools that enable the modification or creation of biological organisms is being pursued overwhelmingly for beneficial purposes ranging from reducing the burden of disease to improving agricultural yields to remediating pollution although the contributions synthetic biology can make in these and other areas hold great promise it is also possible to imagine malicious uses that could threaten u s citizens and military personnel making informed decisions about how to address such concerns requires a realistic assessment of the capabilities that could be misused biodefense in the age of synthetic biology explores and envisions potential misuses of synthetic biology this report develops a framework to guide an assessment of the security concerns related to advances in synthetic biology assesses the levels of concern warranted for such advances and identifies options that could help mitigate those concerns

Quantitative Biology 2022-01-04 this textbook is for biologists to conduct quantitative analysis and modeling of biological processes at molecular and cellular levels focusing on practical concepts and techniques for everyday research this text will enable beginners both students and established biologists to take the first step in quantitative biology it also provides step by step tutorials to run various sample programs in one s personal computer using excel and python this volume traces topics starting with an introductory chapter such as modeling construction and execution of numerical models and key concepts in quantitative biology feedback regulations fluctuations and randomness and statistical analyses it also provide sample codes with guidance to procedure programming for actual biological processes such as movement of the nucleus within a cell cell cycle regulation stripe pattern formation of skins and distribution of energy written by a leading research scientist who has a background in biology studied quantitative approaches by himself and teaches quantitative biology at several universities this textbook broadens quantitative approaches for biologists who do not have a strong background in mathematics physics or computer programming and helps them progress further in their research

Mathematics and 21st Century Biology 2005-07-16 the exponentially increasing amounts of biological data along with comparable advances in computing power are making possible the construction of quantitative predictive biological systems models this development could revolutionize those biology based fields of science to assist this transformation the u s department of energy asked the national research council to recommend mathematical research activities to enable more effective use of the large amounts of existing genomic information and the structural and functional genomic information being created the resulting study is a broad scientifically based view of the opportunities lying at the mathematical science and biology interface the book provides a review of past successes an examination of opportunities at the various levels of biological systemsâ from molecules to ecosystemsâ an analysis of cross cutting themes and a set of recommendations to advance the mathematics biology connection that are applicable to all agencies funding research in this area

Synthetic Biology and iGEM: Techniques, Development and Safety Concerns 2023-06-19 this book focuses on biological engineering techniques multi omics big data integration and data mining techniques as well as cutting edge researches in principles and applications of several synthetic biology applications synthetic biology is a new research area while it has been rooted from the long established area including biological engineering metabolite engineering and systems biology this book will discuss the following aspects 1 introduction to synthetic biology and igem especially focusing on the systematic design rational engineering and sustainability

of design in the omics ages 2 synthetic biology related multi omics data integration and data mining techniques 3 the technical issues development issues and safety issues of synthetic biology 4 data resources web services and visualizations for synthetic biology and 5 advancement in concrete research on synthetic biology with several case studies shown devised as a book on synthetic biology research and education in the omics age this book has put focuses on systematic design rational engineering and sustainability of design for synthetic biology which will explain in detail and with supportive examples the what why and how of the topic it is an attempt to bridge the gap between synthetic biology s research and education side for best practice of synthetic biology and in depth insights for the related questions

Systems Biology Approaches: Prevention, Diagnosis, and Understanding Mechanisms of Complex Diseases 2002-07-25 the biology of people in the past is a rapidly expanding field of historical study our capacity to understand the biology of historical populations is experiencing remarkable developments on both theoretical and analytical fronts human biology and history weaves together the fields of biology archaeology and anthropology in an exchange o

Human Biology and History 2010 conservation biology for all provides cutting edge but basic conservation science to a global readership a series of authoritative chapters have been written by the top names in conservation biology with the principal aim of disseminating cutting edge conservation knowledge as widely as possible important topics such as balancing conservation and human needs climate change conservation planning designing and analyzing conservation research ecosystem services endangered species management extinctions fire habitat loss and invasive species are covered numerous textboxes describing additional relevant material or case studies are also included the global biodiversity crisis is now unstoppable what can be saved in the developing world will require an educated constituency in both the developing and developed world habitat loss is particularly acute in developing countries which is of special concern because it tends to be these locations where the greatest species diversity and richest centres of endemism are to be found sadly developing world conservation scientists have found it difficult to access an authoritative textbook which is particularly ironic since it is these countries where the potential benefits of knowledge application are greatest there is now an urgent need to educate the next generation of scientists in developing countries so that they are in a better position to protect their natural resources

Conservation Biology for All 2014-07-18 alfred c kinsey s revolutionary studies of human sexual behavior are world renowned his meticulous methods of data collection from comprehensive entomological assemblies to personal sex history interviews raised the bar for empirical evidence to an entirely new level in the classification of sex donna j drucker presents an original analysis of kinsey s scientific career in order to uncover the roots of his research methods she describes how his enduring interest as an entomologist and biologist in the compilation and organization of mass data sets structured each of his classification projects as drucker shows kinsey s lifelong mission was to find scientific truth in numbers and through observation and to record without prejudice in the spirit of a true taxonomist kinsey s doctoral work included extensive research of the gall wasp where he gathered and recorded variations in over six million specimens his classification and reclassification of cynips led to the speciation of the genus that remains today during his graduate training kinsey developed a strong interest in evolution and the links between entomological and human behavior studies in 1920 he joined indiana university as a professor in zoology and soon published an introductory text on biology followed by a coauthored field guide to edible wild plants in 1938 kinsey began teaching a noncredit course on marriage where he openly discussed sexual behavior and espoused equal opportunity for orgasmic satisfaction in marital relationships soon after he began gathering case histories

of sexual behavior as a pioneer in the nascent field of sexology kinsey saw that the key to its cogency was grounded in observation combined with the collection and classification of mass data to support the institutionalization of his work he cofounded the institute for sex research at indiana university in 1947 he and his staff eventually conducted over eighteen thousand personal interviews about sexual behavior and in 1948 he published sexual behavior in the human male to be followed in 1953 by sexual behavior in the human female as drucker s study shows kinsey s scientific rigor and his early use of data recording methods and observational studies were unparalleled in his field those practices shaped his entire career and produced a wellspring of new information whether he was studying gall wasp wings writing biology textbooks tracing patterns of evolution or developing a universal theory of human sexuality

The Classification of Sex 2014-11-17 climate change biology 2e examines the evolving discipline of human induced climate change and the resulting shifts in the distributions of species and the timing of biological events the text focuses on understanding the impacts of human induced climate change by drawing on multiple lines of evidence including paleoecology modeling and current observation this revised and updated second edition emphasizes impacts of human adaptation to climate change on nature and greater emphasis on natural processes and cycles and specific elements with four new chapters an increased emphasis on tools for critical thinking and a new glossary and acronym appendix climate change biology 2e is the ideal overview of this field expanded treatment of processes and cycles additional exercises and elements to encourage independent and critical thinking increased on line supplements including mapping activities and suggested labs and classroom activities

Climate Change Biology 2017-10-30 bringing biology to life is a guided tour of the philosophy of biology canvassing three broad areas the early history of biology from aristotle to darwin traditional debates regarding species function and units of selection and recent efforts to better understand the human condition in light of evolutionary biology topics are addressed using no more technical jargon than necessary and without presupposing any advanced knowledge of biology or the philosophy of science on the part of the reader discussion questions are also provided to encourage reader reflection

Bringing Biology to Life 2013-05-13 in the biology of clinical encounters gedo utilizes recent findings in neuroscience and cognitive psychology to elaborate his conception of psychobiology and to consider its implications in clinical analysis he pursues this challenging undertaking in several directions he illuminates the way in which psychobiology enters into his hierarchical model of mental functioning and goes on to examine three clinical syndromes phobias obsessions and affective disturbances in which biological considerations are particularly important of special note are chapters examining the implications of a biological approach for clinical psychoanalysis gedo explores the notion of transference that grows out of attentiveness to psychobiological factors elaborates the concept of therapeutics that follows from looking beyond mental contents and discusses the problem of assessing clinical evidence produced by analyses informed by a psychobiological orientation drawing on his own analytic work of over three decades he compares analyses conducted with a psychobiological orientation with the outcome of analyses conducted earlier in his career with a more traditional psychological approach a stimulating introduction to the interpenetration of the biological and the psychological in clinical work the biology of clinical encounters is quintessential gedo scholarly in conception elegant in tone provocative in import and illuminating always of fundamental issues about the status of psychoanalysis as a science of mind

The Biology of Clinical Encounters 1963 biology trending is a truly innovative introductory biology text designed to combine the teaching of biological concepts within the context of current societal issues biology trending encourages introductory biology students

to think critically about the role that science plays in their world this book features many current and relevant topics including sea level changes and ocean acidification crispr cas9 opioid abuse zika ebola and covid 19 threats to biodiversity and cancer immunotherapies it is accompanied by digital instructor and student resources to support teaching and learning key features adopts an issues approach to teaching introductory biology up to date sections throughout including climate change crispr new hominids covid 19 and new cancer therapies among many others suitable for both major and nonmajor courses more succinct for ease in teaching and more affordable for students high quality illustrations help to elucidate key concepts this book is extended and enhanced through a range of digital resources that include long form and open response self testing resources to test understanding and apply knowledge visual simulations to demonstrate evolutionary processes links and bibliographic resources to expand knowledge time saving instructor resources such as powerpoint slides activity and assignment ideas and comprehensive lesson plans related titles bard j evolution the origins and mechanisms of diversity isbn 9780367357016 prothero d vertebrate evolution from origins to dinosaurs and beyond isbn 9780367473167 johnson n a darwin s reach 21st century applications of evolutionary biology isbn 9781138587397

College Biology II 2023-07-10 this book constitutes the refereed proceedings of the 11th annual international conference on research in computational molecular biology recomb 2007 held in oakland ca usa in april 2007 the 37 revised full papers address all current issues in algorithmic theoretical and experimental bioinformatics

Biology Trending 2007-05-18 this book presents a complete global history of the biological sciences from ancient times to today introducing a long term perspective to the history of biological thought while showing its fractures and upheavals through the ages the history of biology often neglects certain areas such as ecology ethology the study of non human animal behavior and plant biology areas which are covered in this work the broad global perspective offered here will allow the reader to better appreciate the nature of the interdisciplinary exchanges that have shaped the biological sciences perhaps more than any other discipline much attention is also given to the contribution of technology the role of experimentation and more generally the social and technological environment within which scientific transformations develop

Research in Computational Molecular Biology 2021-06 the present volume originated in 2001 when we together with our publishing editors at then kluwer academic publishers realized that the th following year the 50 volume of our journal acta biotheoretica would see the light we felt that this milestone should not pass unnoticed and that the appropriate way to mark it would be the publication of a special volume of papers on theoretical biology while editing this book during 2003 and early 2004 we realized that another milestone was not far off in 2005 it will be 70 years ago that the journal was founded we hope that the book lying before you will serve well to mark both events the papers collected here have been written on invitation by representatives of the theoretical biology community in the netherlands they are intended to reflect the entire spectrum of topics on which acta biotheoretica publishes ranging from philosophy of biology on one end to mathematical biology on the other all chapters except our own introductory one have been peer reviewed according to the standards that are maintained with respect to regular submissions to acta biotheoretica

A History of Biology 1898 these two volumes contain a selection of updated articles from the acclaimed meyers encyclopedia of molecular cell biology and molecular medicine the most authoritative resource in cell and molecular biology combined with new articles by founding fathers in the field the work is divided into six sections biological basis modeling modular parts and circuits synthetic genomes diseases and therapeutics chemicals production ideally suited as advanced reading for students and postdocs and with all

current research trends covered by an impressive number of leading figures in the field this is the first choice reference for research institutions

Queen's Quarterly 1976 a collection of the writing of the highly influential architect juhani pallasmaa presented in short easily accessible and condensed ideas ideal for students juhani pallasmaa is one of finland s most distinguished architects and architectural thinkers publishing around 60 books and several hundred essays and shorter pieces over his career his influential works have inspired undergraduate and postgraduate students of architecture and related disciplines for decades in this compilation of excerpts of his writing readers can discover his key concepts and thoughts in one easily accessible comprehensive volume inseminations seeds for architectural thought is a delightful collection of thoughtful ideas and compositions that float between academic essay and philosophical reflection wide in scope it offers entries covering atmospheres biophilic beauty embodied understanding imperfection light and shadow newness andnowness nostalgia phenomenology of architecture sensory thought silence time and eternity uncertainty and much more makes the wider work of pallasmaa accessible to students across the globe introducing them to his key concepts and thoughts exposes students to a broad range of issues on which pallasmaa has a view features an alphabetized structure that makes serendipitous discovery or linking of concepts more likely presents material in short condensed manner that can be easily digested by students inseminations seeds for architectural thought will appeal to undergraduate students in architecture design urban studies and related disciplines worldwide

Biology Bulletin of the Academy of Sciences of the USSR. 2005-12-05 this volume presents the proceedings of the 1st world congress on electroporation and pulsed electric fields in biology medicine and food environmental technologies wc2015 the congress took place in portorož slovenia during the week of september 6th to 10th 2015 the scientific part of the congress covered different aspects of electroporation and related technologies and included the following main topics application of pulsed electric fields technology in food challenges and opportunities electrical impedence measurement for assessment of electroporation yield electrochemistry and electroporation electroporation meets electrostimulation electrotechnologies for food and biomass treatment food and biotechnology applications in vitro electroporation basic mechanisms interfacial behaviour of lipid assemblies membranes and cells in electric fields irreversible electroporation in clinical use medical applications electrochemotherapy medical applications gene therapy non electric field based physical methods inducing cell poration and enhanced molecule transfer non thermal plasmas for food safety environmental applications and medical treatments pef for the food industry fundamentals and applications pef proce ss integration complex process chains and process combinations in the food industry predictable animal models pulsed electric fields and electroporation technologies in bioeconomy veterinary medical applications

Current Themes in Theoretical Biology 2015-05-18 this volume presents a comprehensive perspective on the global scientific technological and societal impact of nanotechnology since 2000 and explores the opportunities and research directions in the next decade to 2020 the vision for the future of nanotechnology presented here draws on scientific insights from u s experts in the field examinations of lessons learned and international perspectives shared by participants from 35 countries in a series of high level workshops organized by mike roco of the national science foundation nsf along with a team of american co hosts that includes chad mirkin mark hersam evelyn hu and several other eminent u s scientists the study performed in support of the u s national nanotechnology initiative nni aims to redefine the r d goals for nanoscale science and engineering integration and to establish

nanotechnology as a general purpose technology in the next decade it intends to provide decision makers in academia industry and government with a nanotechnology community perspective of productive and responsible paths forward for nanotechnology r d
Synthetic Biology 2020-04-09 the fundamental understanding of the production of biological effects by ionizing radiation may well be one of the most important scientific objectives of mankind such understanding could lead to the effective and safe utilization of the nuclear energy option in addition this knowledge will be of immense value in such diverse fields as radiation therapy and diagnosis and in the space program to achieve the above stated objective the u s department of energy doe and its predecessors embarked upon a fundamental interdisciplinary research program some 35 years ago a critical component of this program is the radiological and chemical physics program rcpp when the rcpp was established there was very little basic knowledge in the fields of physics chemistry and biology that could be directly applied to understanding the effects of radiation on biological systems progress of the rcpp program in its first 15 years was documented in the proceedings of a conference held at airline virginia in 1972 at this conference it was clear that considerable progress had been made in research on the physical and chemical processes in well characterized systems that could be used to understand biological effects during this period of time most physical knowledge was obtained for the gas phase because the technology and instrumentation had not progressed to the point that measurements could be made in liquids more characteristic of biological materials

Inseminations 2015-08-31 fish recruitment is a key process for maintaining sustainable fish populations in the marine environment fish recruitment is carried out in many different ways all of which have different life history strategies the objective of this book is to argue for greater linkages between basic and applied research on fisheries recruitment and assessment and management of exploited fish stocks following an introductory chapter this second edition of fish reproductive biology is organized into 3 main sections biology population dynamics and recruitment information critical to successful assessment and management incorporation of reproductive biology and recruitment considerations into management advice and strategies the authors collectively bring a wide range of diverse experience in areas of reproductive biology fisheries oceanography stock assessment and management fully updated throughout the book will be of great interest to a wide audience it is useful as a textbook in graduate and undergraduate courses in fisheries biology fisheries science and fisheries resource management and will provide vital information for fish biologists fisheries scientists and managers

1st World Congress on Electroporation and Pulsed Electric Fields in Biology, Medicine and Food & Environmental Technologies 1933 in haunting biology emma kowal recounts the troubled history of western biological studies of indigenous australians and asks how we now might see contemporary genomics especially that conducted by aboriginal and torres strait islander scientists kowal illustrates how the material persistence of samples over decades and centuries folds together the fates of different scientific methodologies blood bones hair comparative anatomy human biology physiology and anthropological genetics all haunt each other across time and space together with the many racial theories they produced and sustained the stories kowal tells feature a variety of ghostly presences a dead anatomist a fetishized piece of hair hidden away in a war trunk and an elusive white indigenous person by linking this history to contemporary genomics and twenty first century indigeneity kowal outlines the fraught complexities perils and potentials of studying indigenous biological difference in the twenty first century

The Journal of Education 2011-06-17 science competitions test a student s level of knowledge power of scientific reasoning and

analytical thinking outside of the regular school curriculum a systematic approach and smart study regimen are both required to get good results in science competitions in this book you will find many tips and tricks for how to study and prepare for science olympiads moreover you will learn how to boost your motivation cope with failures and anxiety before the tests defeat procrastination manage your time memorize information quicker and more effectively organize your study material read a science textbook plan your study schedule develop practical skills get into and survive in the lab furthermore you will find essential test taking strategies for tackling the olympiad exams and example based tips on how to develop critical thinking and problem solving skills

Nanotechnology Research Directions for Societal Needs in 2020 2012-12-06 this teaching monograph on systems approaches to cancer research and clinical applications provides a unique synthesis by world class scientists and doctors of laboratory computational and clinical methods thereby establishing the foundations for major advances not possible with current methods specifically the book 1 sets the stage by describing the basis of systems biology and bioinformatics approaches and the clinical background of cancer in a systems context 2 summarizes the laboratory clinical data systems analysis and bioinformatics tools along with infrastructure and resources required 3 demonstrates the application of these tools to cancer research 4 extends these tools and methods to clinical diagnosis drug development and treatment applications and 5 finishes by exploring longer term perspectives and providing conclusions this book reviews the state of the art and goes beyond into new applications it is written and highly referenced as a textbook and practical guide aimed at students academics doctors clinicians industrialists and managers in cancer research and therapeutic applications ideally it will set the stage for integration of available knowledge to optimize communication between basic and clinical researchers involved in the ultimate fight against cancer whatever the field of specific interest whatever the area of activity within translational research

Physical and Chemical Mechanisms in Molecular Radiation Biology 2016-01-22 the goal of this book is to search for a balance between simple and analyzable models and unsolvable models which are capable of addressing important questions on population biology part i focusses on single species simple models including those which have been used to predict the growth of human and animal population in the past single population models are in some sense the building blocks of more realistic models the subject of part ii their role is fundamental to the study of ecological and demographic processes including the role of population structure and spatial heterogeneity the subject of part iii this book which will include both examples and exercises is of use to practitioners graduate students and scientists working in the field

Fish Reproductive Biology 2023-10-13 relations between the biological and social sciences have been hotly contested and debated over the years the uses and abuses of biology not least to legitimate or naturalize social inequalities and to limit freedoms have rightly been condemned all too often however the style of debate has been reductionist and ultimately unfruitful as we enter an age in which ultr darwinian forms of explanation gather momentum and the bio tech revolution threatens a brave new world of possibilities there is urgent need to re open the dialogue and rethink these issues in more productive ways debating biology takes a fresh look at the relationship between biology and society as it is played out in the arena of health and medicine bringing together contributions from both biologists and sociologists the book is divided into five themed sections theorising biology draws on a range of critical perspectives to discuss the case or bringing back the biological into sociology structuring biology focuses on the interplay between biological and social factors in the patterning of health and illness embodying biology examines the relationship between the lived body and the biological body technologizing biology takes up the multiple relations between biology science and technology reclaiming biology looks

at the broader ethical and political agendas written in an accessible and engaging style this timely volume will appeal to a wide audience within and beyond the social sciences including students lecturers and researchers in health and related domains

Haunting Biology 2019-05-09 this volume contains an advanced level discussion on the appropriateness of hormone replacement therapy hrt in modern postmenopausal women on the basis of evidence provided by recent epidemiological studies it addresses all aspects of benefits and risks associated with hrt it focuses however on cancer risk and on risk of breast cancer in particular the book advocates further epidemiological studies which incorporate pathobiological assessments

How to prepare for the biology olympiad 1988 this book is about the process of doing research not about the results obtained a number of researchers with experience working on problems including environmental stresses population genetics parasitic vectors and vital records describe obstacles encountered and successful strategies employed in their own studies and in those of others one learns to do research by trial and error but accounts such as these can supplement what one learns from mentors and fellow students

Research Priorities for Single Species Conservation Biology 2011-08-21 oceanography and marine biology an annual review remains one of the most cited sources in marine science and oceanography the ever increasing interest in work in oceanography and marine biology and its relevance to global environmental issues especially global climate change and its impacts creates a demand for authoritative reviews summarizing the results of recent research this volume covers topics that include resting cysts from coastal marine plankton facilitation cascades in marine ecosystems and the way that human activities are rapidly altering the sensory landscape and behaviour of marine animals for more than 50 years omar has been an essential reference for research workers and students in all fields of marine science from volume 57 a new international editorial board ensures global relevance with editors from the uk ireland canada australia and singapore the series volumes find a place in the libraries of not only marine laboratories and institutes but also universities previous volume impact factors include volume 53 4 545 volume 54 7 000 volume 55 5 071 guidelines for contributors including information on illustration requirements can be downloaded on the downloads updates tab on the volume s crc press webpage chapters 2 3 4 5 6 and 7 of this book are freely available as downloadable open access pdfs at taylorfrancis com under a creative commons attribution non commercial no derivatives cc by nc nd 4 0 license

Cancer Systems Biology, Bioinformatics and Medicine 2011-11-09 integrated history and philosophy of science ihps is commonly understood as the study of science from a combined historical and philosophical perspective yet since its gradual formation as a research field the question of how to suitably integrate both perspectives remains open this volume presents cutting edge research from junior ihps scholars and in doing so provides a snapshot of current developments within the field explores the connection between ihps and other academic disciplines and demonstrates some of the topics that are attracting the attention of scholars who will help define the future of ihps

Mathematical Models in Population Biology and Epidemiology 1964 this book presents outstanding contributions in an exciting new and multidisciplinary research area the application of formal automated reasoning techniques to analyse complex models in systems biology and systems medicine automated reasoning is a field of computer science devoted to the development of algorithms that yield trustworthy answers providing a basis of sound logical reasoning for example in the semiconductor industry formal verification is instrumental to ensuring that chip designs are free of defects or bugs over the past 15 years systems biology and systems medicine have been introduced in an attempt to understand the enormous complexity of life from a computational point of view this has

generated a wealth of new knowledge in the form of computational models whose staggering complexity makes manual analysis methods infeasible sound trusted and automated means of analysing the models are thus required in order to be able to trust their conclusions above all this is crucial to engineering safe biomedical devices and to reducing our reliance on wet lab experiments and clinical trials which will in turn produce lower economic and societal costs some examples of the questions addressed here include can we automatically adjust medications for patients with multiple chronic conditions can we verify that an artificial pancreas system delivers insulin in a way that ensures type 1 diabetic patients never suffer from hyperglycaemia or hypoglycaemia and lastly can we predict what kind of mutations a cancer cell is likely to undergo this book brings together leading researchers from a number of highly interdisciplinary areas including parameter inference from time series model selection network structure identification machine learning systems medicine hypothesis generation from experimental data systems biology systems medicine and digital pathology verification of biomedical devices this book presents a comprehensive spectrum of model focused analysis techniques for biological systems an essential resource for tracking the developments of a fast moving field that promises to revolutionize biology and medicine by the automated analysis of models and data prof luca cardelli frs university of oxford

Biology and medicine; training, education, and information; Plowshare; isotopes development; physical research; communities; and AEC administrative programs 2005-07-28 this volume offers a much needed compilation of essential reviews on diverse aspects of plant biology written by eminent botanists these reviews effectively cover a wide range of aspects of plant biology that have contemporary relevance at the same time they integrate classical morphology with molecular biology physiology with pattern formation growth with genomics development with morphogenesis and classical crop improvement techniques with modern breeding methodologies classical botany has been transformed into cutting edge plant biology thus providing the theoretical basis for plant biotechnology it goes without saying that biotechnology has emerged as a powerful discipline of biology in the last three decades biotechnological tools techniques and information used in combination with appropriate planning and execution have already contributed significantly to economic growth and development it is estimated that in the next decade or two products and processes made possible by biotechnology will account for over 60 of worldwide commerce and output there is therefore a need to arrive at a general understanding and common approach to issues related to the nature possession conservation and use of biodiversity as it provides the raw material for biotechnology more than 90 of the total requirements for the biotechnology industry are contributed by plants and microbes in terms of goods and services there are however substantial plant and microbial resources that are waiting for biotechnological exploitation in the near future through effective bioprospection in order to exploit plants and microbes for their useful products and processes we need to first understand their basic structure organization growth and development cellular process and overall biology we also need to identify and develop strategies to improve the productivity of plants in view of the above in this two volume book on plant biology and biotechnology the first volume is devoted to various aspects of plant biology and crop improvement it includes 33 chapters contributed by 50 researchers each of which is an expert in his her own field of research the book begins with an introductory chapter that gives a lucid account on the past present and future of plant biology thereby providing a perfect historical foundation for the chapters that follow four chapters are devoted to details on the structural and developmental aspects of the structures of plants and their principal organs these chapters provide the molecular biological basis for the regulation of morphogenesis of the form of plants and their organs involving control at the cellular and tissue levels details on biodiversity the basic raw material for biotechnology are discussed in a separate chapter in which

emphasis is placed on the genetic species and ecosystem diversities and their conservation since fungi and other microbes form an important component of the overall biodiversity special attention is paid to the treatment of fungi and other microbes in this volume four chapters respectively deal with an overview of fungi arbuscularmycorrhizae and their relation to the sustenance of plant wealth diversity and practical applications of mushrooms and lichens associated with a photobiont microbial endosymbionts associated with plants and phosphate solubilizing microbes in the rhizosphere of plants are exhaustively treated in two separate chapters the reproductive strategies of bryophytes and an overview on cycads form the subject matter of another two chapters thus fulfilling the need to deal with the non flowering embryophyte group of plants angiosperms the most important group of plants from a biotechnological perspective are examined exhaustively in this volume the chapters on angiosperms provide an overview and cover the genetic basis of flowers development pre and post fertilization reproductive growth and development seed biology and technology plant secondary metabolism photosynthesis and plant volatile chemicals a special effort has been made to include important topics on crop improvement in this volume the importance of pollination services apomixes male sterility induced mutations polyploidy and climate changes is discussed each in a separate chapter microalgalnutra pharmaceuticals vegetable oil based nutraceuticals and the importance of alien crop resources and underutilized crops for food and nutritional security form the topics of three other chapters in this volume there is also a special chapter on the applications of remote sensing in the plant sciences which also provides information on biodiversity distribution the editors of this volume believe the wide range of basic topics on plant biology that have great relevance in biotechnology covered will be of great interest to students researchers and teachers of botany and plant biotechnology alike

Debating Biology 2007-05-24 immunological recognition of peptides in medicine and biology gives a state of the art overview on the use of peptides and peptide ligand interactions and the critical role they play in recognition patterns for the regulation of various biological functions a wide range of applications are discussed including some experimental preclinical ones such as epitope mapping peptide libraries and production of amino acid specific antibodies and their therapeutic use in oncology and infectious disease vaccines each chapter also includes step by step protocols to aid in actual experiments several alternative techniques and strategies are discussed by different authors offering the reader an opportunity to select the most favorable application for a specific biological problem

Biologie und Epidemiologie der Hormonersatztherapie - Biology and Epidemiology of Hormone Replacement Therapy
1993-11-04

Research Strategies in Human Biology 2019-08-02

Oceanography and Marine Biology 2019-05-14

The Past, Present, and Future of Integrated History and Philosophy of Science 2019-06-11

Automated Reasoning for Systems Biology and Medicine 2015-07-02

Plant Biology and Biotechnology 1995-07-19

Immunological Recognition of Peptides in Medicine and Biology 1996

Computational Biology

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