

## Chapter 1 The Nature And Scope Of Organizational Behavior

How can economists define and measure social preferences and interactions? Through the use of new economic data and tools, our contributors survey an array of social interactions and decisions that typify homo economicus. Identifying economic strains in activities such as learning, group formation, discrimination, and the creation of peer dynamics, they demonstrate how they tease out social preferences from the influences of culture, familial beliefs, religion, and other forces. Advances our understanding about quantifying social interactions and the effects of culture Summarizes research on theoretical and applied economic analyses of social preferences Explores the recent willingness among economists to consider new arguments in the utility function

The features of chemistry that make it such a fascinating and engaging subject to teach also contribute to it being a challenging subject for many learners. Chemistry draws upon a wide range of abstract concepts, which are embedded in a large body of theoretical knowledge. As a science, chemistry offers ideas that are the products of scientists' creative imaginations, and yet which are motivated and constrained by observations of natural phenomena. Chemistry is often discussed and taught largely in terms of non-observable theoretical entities - such as molecules and electrons and orbitals - which probably seem as familiar and real to a chemistry teacher as Bunsen burners: and, yet, comprise a realm as alien and strange to many students as some learners' own alternative conceptions ('misconceptions') may appear to the teacher. All chemistry teachers know that chemistry is a conceptual subject, especially at the upper end of secondary school and at university level, and that some students struggle to understand many chemical ideas. This book offers a step-by-step analysis and discussion of just why some students find chemistry difficult, by examining the nature of chemistry concepts, and how they are communicated and learnt. The book considers the idea of concepts itself; draws upon case studies of how canonical chemical concepts have developed; explores how chemical concepts become represented in curriculum and in classroom teaching; and discusses how conceptual learning and development occurs. This book will be invaluable to anyone interested in teaching and learning and offers guidance to teachers looking to make sense of, and respond to, the challenges of teaching chemistry.

University Physics is designed for the two- or three-semester calculus-based physics course. The text has been developed to meet the scope and sequence of most university physics courses and provides a foundation for a career in mathematics, science, or engineering. The book provides an important opportunity for students to learn the core concepts of physics and understand how those concepts apply to their lives and to the world around them. Due to the comprehensive nature of the material, we are offering the book in three volumes for flexibility and efficiency.

Coverage and Scope Our University Physics textbook adheres to the scope and sequence of most two- and three-semester physics courses nationwide. We have worked to make physics interesting and accessible to students while maintaining the mathematical rigor inherent in the subject. With this objective in mind, the content of this textbook has been developed and arranged to provide a logical progression from fundamental to more advanced concepts, building upon what students have already learned and emphasizing connections between topics and between theory and applications. The goal of each section is to enable students not just to recognize concepts, but to work with them in ways that will be useful in later courses and future careers. The organization and pedagogical features were developed and vetted with feedback from science educators dedicated to the project. VOLUME III Unit 1: Optics Chapter 1: The Nature of Light Chapter 2: Geometric Optics and Image Formation Chapter 3: Interference Chapter 4: Diffraction Unit 2: Modern Physics Chapter 5: Relativity Chapter 6: Photons and Matter Waves Chapter 7: Quantum Mechanics Chapter 8: Atomic Structure Chapter 9: Condensed Matter Physics Chapter 10: Nuclear Physics Chapter 11: Particle Physics and Cosmology

Humans, especially children, are naturally curious. Yet, people often balk at the thought of learning science--the "eyes glazed over" syndrome. Teachers may find teaching science a major challenge in an era when science ranges from the hardly imaginable quark to the distant, blazing quasar. Inquiry and the National Science Education Standards is the book that educators have been waiting for--a practical guide to teaching inquiry and teaching through inquiry, as recommended by the National Science Education Standards. This will be an important resource for educators who must help school boards, parents, and teachers understand "why we can't teach the way we used to." "Inquiry" refers to the diverse ways in which scientists study the natural world and in which students grasp science knowledge and the methods by which that knowledge is produced. This book explains and illustrates how inquiry helps students learn science content, master how to do science, and understand the nature of science. This book explores the dimensions of teaching and learning science as inquiry for K-12 students across a range of science topics. Detailed examples help clarify when teachers should use the inquiry-based approach and how much structure, guidance, and coaching they should provide. The book dispels myths that may have discouraged educators from the inquiry-based approach and illuminates the subtle interplay between concepts, processes, and science as it is experienced in the classroom. Inquiry and the National Science Education Standards shows how to bring the standards to life, with features such as classroom vignettes exploring different kinds of inquiries for elementary, middle, and high school and Frequently Asked Questions for teachers, responding to common concerns such as obtaining teaching supplies. Turning to assessment, the committee discusses why assessment is important, looks at existing schemes and formats, and addresses how to involve students in assessing their own learning achievements. In addition, this book discusses administrative assistance, communication with parents, appropriate teacher evaluation, and other avenues to promoting and supporting this new teaching paradigm.

NATIONAL BESTSELLER • The Pulitzer Prize–winning author of *The Sixth Extinction* returns to humanity's transformative impact on the environment, now asking: After doing so much damage, can we change nature, this time to save it? RECOMMENDED BY PRESIDENT OBAMA AND BILL GATES • SHORTLISTED FOR THE WAINWRIGHT PRIZE FOR WRITING • NAMED ONE OF THE BEST BOOKS OF THE YEAR BY *ESQUIRE* AND *PUBLISHERS WEEKLY* • "Beautifully and insistently, Kolbert shows us that it is time to think radically about the ways we manage the environment."—Helen Macdonald, *The New York Times* That man should have dominion "over all the earth, and over every creeping thing that creepeth upon the earth" is a prophecy that has hardened into fact. So pervasive are human impacts on the planet that it's said we live in a new geological epoch: the Anthropocene. In *Under a White Sky*, Elizabeth Kolbert takes a hard look at the new world we are creating. Along the way, she meets biologists who are trying to preserve the world's rarest fish, which lives in a single tiny pool in the middle of the Mojave; engineers who are turning carbon emissions to stone in Iceland; Australian researchers who are trying to develop a "super coral" that can survive on a hotter globe; and

physicists who are contemplating shooting tiny diamonds into the stratosphere to cool the earth. One way to look at human civilization, says Kolbert, is as a ten-thousand-year exercise in defying nature. In *The Sixth Extinction*, she explored the ways in which our capacity for destruction has reshaped the natural world. Now she examines how the very sorts of interventions that have imperiled our planet are increasingly seen as the only hope for its salvation. By turns inspiring, terrifying, and darkly comic, *Under a White Sky* is an utterly original examination of the challenges we face.

In order to compete in the modern world, any society today must rank education in science, mathematics, and technology as one of its highest priorities. It's a sad but true fact, however, that most Americans are not scientifically literate. International studies of educational performance reveal that U.S. students consistently rank near the bottom in science and mathematics. The latest study of the National Assessment of Educational Progress has found that despite some small gains recently, the average performance of seventeen-year-olds in 1986 remained substantially lower than it had been in 1969. As the world approaches the twenty-first century, American schools-- when it comes to the advancement of scientific knowledge-- seem to be stuck in the Victorian age. In *Science for All Americans*, F. James Rutherford and Andrew Ahlgren brilliantly tackle this devastating problem. Based on Project 2061, a scientific literacy initiative sponsored by the American Association for the Advancement of Science, this wide-ranging, important volume explores what constitutes scientific literacy in a modern society; the knowledge, skills, and attitudes all students should acquire from their total school experience from kindergarten through high school; and what steps this country must take to begin reforming its system of education in science, mathematics, and technology. *Science for All Americans* describes the scientifically literate person as one who knows that science, mathematics, and technology are interdependent enterprises with strengths and limitations; who understands key concepts and principles of science; who recognizes both the diversity and unity of the natural world; and who uses scientific knowledge and scientific ways of thinking for personal and social purposes. Its recommendations for educational reform downplay traditional subject categories and instead highlight the connections between them. It also emphasizes ideas and thinking skills over the memorization of specialized vocabulary. For instance, basic scientific literacy means knowing that the chief function of living cells is assembling protein molecules according to the instructions coded in DNA molecules, but does not mean necessarily knowing the terms "ribosome" or "deoxyribonucleic acid." Science, mathematics, and technology will be at the center of the radical changes in the nature of human existence that will occur during the next life span; therefore, preparing today's children for tomorrow's world must entail a solid education in these areas. *Science for All Americans* will help pave the way for the necessary reforms in America's schools.

*The Periodic Table: Nature's Building Blocks: An Introduction to the Naturally Occurring Elements, Their Origins and Their Uses* addresses how minerals and their elements are used, where the elements come from in nature, and their applications in modern society. The book is structured in a logical way using the periodic table as its outline. It begins with an introduction of the history of the periodic table and a short introduction to mineralogy. Element sections contain their history, how they were discovered, and a description of the minerals that contain the element. Sections conclude with our current use of each element. Abundant color photos of some of the most characteristic minerals containing the element accompany the discussion. Ideal for students and researchers working in inorganic chemistry, mineralogy and geology, this book provides the foundational knowledge needed for successful study and work in this exciting area. Describes the link between geology, minerals and chemistry to show how chemistry relies on elements from nature Emphasizes the connection between geology, mineralogy and daily life, showing how minerals contribute to the things we use and in our modern economy Contains abundant color photos of each mineral that bring the periodic table to life

This established text is the only introduction to qualitative research methodologies in the field of library and information management. Its extensive coverage encompasses all aspects of qualitative research work from conception to completion, and all types of study in a variety of settings from multi-site projects to data organization. The book features many case studies and examples, and offers a comprehensive manual of practice designed for LIS professionals. This new edition has been thoroughly revised and includes three new chapters. It has been updated to take account of the substantial growth in the amount and quality of web-based information relevant to qualitative research methods and practice, and the many developments in software applications and resources. The authors have identified a clear need for a new chapter on the evaluation of existing research, as a gateway into new research for information professionals. The final chapter, 'Human Resources In Knowledge Management', takes the form of a model case study, and is an 'ideal' qualitative investigation in an information setting. It exemplifies many of the approaches to qualitative research discussed in earlier chapters. Readership: Directed primarily at the beginner researcher, this book also offers a practical refresher in this important area for the more experienced researcher. It is a useful tool for all practitioners and researchers in information organizations, whether libraries, archives, knowledge management centres, record management centres, or any other type of information service provider.

*Against Nature* examines the history of the concept of nature in the tradition of Critical Theory, with chapters on Lukacs, Horkheimer and Adorno, Marcuse, and Habermas. It argues that the tradition has been marked by significant difficulties with respect to that concept; that these problems are relevant to contemporary environmental philosophy as well; and that a solution to them requires taking seriously--and literally--the idea of nature as socially constructed.

An introduction to the mechanical bond -- The fundamentals of making mechanical bonds -- Making mechanical bonds under thermodynamic control -- Molecular topologies and architectures with mechanical bonds -- The stereochemistry of the mechanical bond -- Molecular switches and machines with mechanical bonds

Can we emulate nature's technology in chemistry? Through billions of years of evolution, Nature has generated some remarkable systems and substances that have made life on earth what it is today. Increasingly, scientists are seeking to mimic Nature's systems and processes in the lab in order to harness the power of Nature for the benefit of society. *Bioinspiration and Biomimicry in Chemistry* explores the chemistry of Nature and how we can replicate what Nature does in abiological settings. Specifically, the book focuses on wholly artificial, man-made systems that employ or are inspired by principles of Nature, but which do not use materials of biological origin. Beginning with a general overview of the concept of bioinspiration and biomimicry in chemistry, the book tackles such topics as: Bioinspired molecular machines Bioinspired catalysis Biomimetic amphiphiles and

vesicles Biomimetic principles in macromolecular science Biomimetic cavities and bioinspired receptors Biomimicry in organic synthesis Written by a team of leading international experts, the contributed chapters collectively lay the groundwork for a new generation of environmentally friendly and sustainable materials, pharmaceuticals, and technologies. Readers will discover the latest advances in our ability to replicate natural systems and materials as well as the many impediments that remain, proving how much we still need to learn about how Nature works. Bioinspiration and Biomimicry in Chemistry is recommended for students and researchers in all realms of chemistry. Addressing how scientists are working to reverse engineer Nature in all areas of chemical research, the book is designed to stimulate new discussion and research in this exciting and promising field. This new edition provides a scholarly and readable introduction to all the key qualitative and quantitative research methodologies and methods, enabling postgraduate and masters-level students and new researchers to reflect on which ones suit their needs and to receive guidance on how to find out more. With chapters written by experienced research practitioners, this second edition has been extensively expanded and updated. There are seven completely new chapters, as well as: - new material on literature reviews - a new introduction to quantitative methods - an expanded glossary - Weblinks with free access to a wide range of peer-reviewed journal articles - an annotated bibliography with conversational notes from authors in each chapter. This book will act as your 'expert friend' throughout your research project, providing advice, explaining key concepts and the implications for your research design, and illustrating these with examples of real research studies.

In *The Nature of the Book*, a tour de force of cultural history, Adrian Johns constructs an entirely original and vivid picture of print culture and its many arenas—commercial, intellectual, political, and individual. "A compelling exposition of how authors, printers, booksellers and readers competed for power over the printed page. . . . The richness of Mr. Johns's book lies in the splendid detail he has collected to describe the world of books in the first two centuries after the printing press arrived in England."—Alberto Manguel, *Washington Times* "[A] mammoth and stimulating account of the place of print in the history of knowledge. . . . Johns has written a tremendously learned primer."—D. Graham Burnett, *New Republic* "A detailed, engrossing, and genuinely eye-opening account of the formative stages of the print culture. . . . This is scholarship at its best."—Merle Rubin, *Christian Science Monitor* "The most lucid and persuasive account of the new kind of knowledge produced by print. . . . A work to rank alongside McLuhan."—John Sutherland, *The Independent* "Entertainingly written. . . . The most comprehensive account available . . . well documented and engaging."—Ian Maclean, *Times Literary Supplement*

What is science for a child? How do children learn about science and how to do science? Drawing on a vast array of work from neuroscience to classroom observation, *Taking Science to School* provides a comprehensive picture of what we know about teaching and learning science from kindergarten through eighth grade. By looking at a broad range of questions, this book provides a basic foundation for guiding science teaching and supporting students in their learning. *Taking Science to School* answers such questions as: When do children begin to learn about science? Are there critical stages in a child's development of such scientific concepts as mass or animate objects? What role does nonschool learning play in children's knowledge of science? How can science education capitalize on children's natural curiosity? What are the best tasks for books, lectures, and hands-on learning? How can teachers be taught to teach science? The book also provides a detailed examination of how we know what we know about children's learning of science--about the role of research and evidence. This book will be an essential resource for everyone involved in K-8 science education--teachers, principals, boards of education, teacher education providers and accreditors, education researchers, federal education agencies, and state and federal policy makers. It will also be a useful guide for parents and others interested in how children learn.

How can we capture the unpredictable evolutionary and emergent properties of nature in software? How can understanding the mathematical principles behind our physical world help us to create digital worlds? This book focuses on a range of programming strategies and techniques behind computer simulations of natural systems, from elementary concepts in mathematics and physics to more advanced algorithms that enable sophisticated visual results. Readers will progress from building a basic physics engine to creating intelligent moving objects and complex systems, setting the foundation for further experiments in generative design. Subjects covered include forces, trigonometry, fractals, cellular automata, self-organization, and genetic algorithms. The book's examples are written in Processing, an open-source language and development environment built on top of the Java programming language. On the book's website (<http://www.natureofcode.com>), the examples run in the browser via Processing's JavaScript mode.

"The book provides a reference point for beginning educational researchers to grasp the most pertinent elements of designing and conducting research..." —Megan Tschannen-Moran, *The College of William & Mary Quantitative Research in Education: A Primer, Second Edition* is a brief and practical text designed to allay anxiety about quantitative research. Award-winning authors Wayne K. Hoy and Curt M. Adams first introduce readers to the nature of research and science, and then present the meaning of concepts and research problems as they dispel notions that quantitative research is too difficult, too theoretical, and not practical. Rich with concrete examples and illustrations, the *Primer* emphasizes conceptual understanding and the practical utility of quantitative methods while teaching strategies and techniques for developing original research hypotheses. The *Second Edition* includes suggestions for empirical investigation and features a new section on self-determination theory, examples from the latest research, a concluding chapter illustrating the practical applications of quantitative research, and much more. This accessible *Primer* is perfect for students and researchers who want a quick understanding of the process of scientific inquiry and who want to learn how to effectively create and test ideas.

Throughout history, some books have changed the world. They have transformed the way we see ourselves - and each other. They have inspired debate, dissent, war and revolution. They have enlightened, outraged, provoked and comforted. They have enriched lives - and destroyed them. Now Penguin brings you the works of the great thinkers, pioneers, radicals and

visionaries whose ideas shook civilization and helped make us who we are.

A special fiftieth anniversary edition of Kurt Vonnegut's masterpiece, "a desperate, painfully honest attempt to confront the monstrous crimes of the twentieth century" (Time), featuring a new introduction by Kevin Powers, author of the National Book Award finalist *The Yellow Birds* Selected by the Modern Library as one of the 100 best novels of all time *Slaughterhouse-Five*, an American classic, is one of the world's great antiwar books. Centering on the infamous World War II firebombing of Dresden, the novel is the result of what Kurt Vonnegut described as a twenty-three-year struggle to write a book about what he had witnessed as an American prisoner of war. It combines historical fiction, science fiction, autobiography, and satire in an account of the life of Billy Pilgrim, a barber's son turned draftee turned optometrist turned alien abductee. As Vonnegut had, Billy experiences the destruction of Dresden as a POW. Unlike Vonnegut, he experiences time travel, or coming "unstuck in time." An instant bestseller, *Slaughterhouse-Five* made Kurt Vonnegut a cult hero in American literature, a reputation that only strengthened over time, despite his being banned and censored by some libraries and schools for content and language. But it was precisely those elements of Vonnegut's writing—the political edginess, the genre-bending inventiveness, the frank violence, the transgressive wit—that have inspired generations of readers not just to look differently at the world around them but to find the confidence to say something about it. Authors as wide-ranging as Norman Mailer, John Irving, Michael Crichton, Tim O'Brien, Margaret Atwood, Elizabeth Strout, David Sedaris, Jennifer Egan, and J. K. Rowling have all found inspiration in Vonnegut's words. Jonathan Safran Foer has described Vonnegut as "the kind of writer who made people—young people especially—want to write." George Saunders has declared Vonnegut to be "the great, urgent, passionate American writer of our century, who offers us . . . a model of the kind of compassionate thinking that might yet save us from ourselves." Fifty years after its initial publication at the height of the Vietnam War, Vonnegut's portrayal of political disillusionment, PTSD, and postwar anxiety feels as relevant, darkly humorous, and profoundly affecting as ever, an enduring beacon through our own era's uncertainties. "Poignant and hilarious, threaded with compassion and, behind everything, the cataract of a thundering moral statement."—The Boston Globe

This 1992 book explains how people acquire political information from elites and the mass media and convert it into political preferences.

In his only complete work of any length, Kenneth Craik considers thought as a term for the conscious working of a highly complex machine.

From the #1 New York Times bestselling author of *The 48 Laws of Power* comes the definitive new book on decoding the behavior of the people around you Robert Greene is a master guide for millions of readers, distilling ancient wisdom and philosophy into essential texts for seekers of power, understanding and mastery. Now he turns to the most important subject of all - understanding people's drives and motivations, even when they are unconscious of them themselves. We are social animals. Our very lives depend on our relationships with people. Knowing why people do what they do is the most important tool we can possess, without which our other talents can only take us so far. Drawing from the ideas and examples of Pericles, Queen Elizabeth I, Martin Luther King Jr, and many others, Greene teaches us how to detach ourselves from our own emotions and master self-control, how to develop the empathy that leads to insight, how to look behind people's masks, and how to resist conformity to develop your singular sense of purpose. Whether at work, in relationships, or in shaping the world around you, *The Laws of Human Nature* offers brilliant tactics for success, self-improvement, and self-defense.

A forceful and accessible discussion of Christian belief that has become one of the most popular introductions to Christianity and one of the most popular of Lewis's books. Uncovers common ground upon which all Christians can stand together.

Minority groups are severely underrepresented in the scientific workforce. To encourage minorities to pursue careers in research, a variety of "intervention programs" have been created at the pre-college, college, and graduate school levels. While there is a belief that these programs often achieve their goals, there is relatively little understanding of the factors that contribute to that success. The Division of Minority Opportunities in Research (MORE) at the National Institute of General Medical Sciences of the National Institutes of Health has established a grant program to support research to better understand the factors that contribute to the success of intervention programs. The MORE Division asked the National Academies to organize a workshop focusing on issues addressed by the grant program. This workshop summary presents examples of previous research on intervention programs, describes ways to formulate effective research questions and conduct research to identify the key elements that lead to successful intervention programs, and outlines ways to foster a community of researchers in this area.

*Enabling Participation* provides a key reference work for health and education practitioners who wish to optimise outcomes for children, young people and families where there is an individual with a childhood onset neurodisability. By focusing on participation -- what is it, how to measure it and how to influence it – the book aims to support professionals to utilise the most recent developments in the field. Written in five parts, the book provides the reader with knowledge about the concept of participation; detailed understanding of how varying contexts influence participation outcomes; how to measure participation as an outcome and as a process; how to intervene to promote participation outcomes; and future directions and challenges. Chapters provide diverse examples of evidence-based practices and are enriched by scenarios and vignettes to engage and challenge the reader to consider how participation in meaningful activities might be optimised for individuals and their families. The book's practical examples aim to facilitate knowledge transfer, clinical application and service planning for the future.

Most of the instruments now used for materials research are too complex and expensive for individual investigators to own, operate, and maintain them. Consequently, they have become increasingly consolidated into multi-user, small to midsized research facilities, located at many sites around the country. The proliferation of these facilities, however, has drawn calls for a careful assessment of best principles for their operation. With support from the Department of Energy and the National Science Foundation, the NRC carried out a study to characterize and discuss ways to optimize investments in materials research facility infrastructure with attention to midsize facilities. This report provides an assessment of the nature and importance of mid-sized facilities, their capabilities, challenges they face, current investment, and optimizing their effectiveness.

Repackaged with a new Afterword, this "valuable and entertaining" (New York Times Book Review) book explores how scientists are adapting nature's best ideas to solve tough 21st century problems Biomimicry is rapidly transforming life on earth. Biomimics study nature's most successful ideas over the past 3.5 million years, and adapt them for human use. The results are revolutionizing how materials are invented and how we compute, heal ourselves, repair the environment, and feed the world. Janine Benyus takes readers into the lab and in the field with maverick thinkers as they: discover miracle drugs by watching what chimps eat when they're sick; learn how to create by watching spiders weave fibers; harness energy by examining how a leaf converts sunlight into fuel in trillionths of a second; and many

more examples. Composed of stories of vision and invention, personalities and pipe dreams, Biomimicry is must reading for anyone interested in the shape of our future.

Nature's Machines: An Introduction to Organismal Biomechanics presents the fundamental principles of biomechanics in a concise, accessible way while maintaining necessary rigor. It covers the central principles of whole-organism biomechanics as they apply across the animal and plant kingdoms, featuring brief, tightly-focused coverage that does for biologists what H. M. Frost's 1967 Introduction to Biomechanics did for physicians. Frequently encountered, basic concepts such as stress and strain, Young's modulus, force coefficients, viscosity, and Reynolds number are introduced in early chapters in a self-contained format, making them quickly available for learning and as a refresher. More sophisticated, integrative concepts such as viscoelasticity or properties of hydrostats are covered in the later chapters, where they draw on information from multiple earlier sections of the book. Animal and plant biomechanics is now a common research area widely acknowledged by organismal biologists to have broad relevance. Most of the day-to-day activities of an animal involve mechanical processes, and to the extent that organisms are shaped by adaptive evolution, many of those adaptations are constrained and channelized by mechanical properties. The similarity in body shape of a porpoise and a tuna is no coincidence. Many may feel that they have an intuitive understanding of many of the mechanical processes that affect animals and plants, but careful biomechanical analyses often yield counterintuitive results: soft, squishy kelp may be better at withstanding pounding waves during storms than hard-shelled mollusks; really small swimmers might benefit from being spherical rather than streamlined; our bones can operate without breaking for decades, whereas steel surgical implants exhibit fatigue failures in a few months if not fully supported by bone. Offers organismal biologists and biologists in other areas a background in biomechanics to better understand the research literature and to explore the possibility of using biomechanics approaches in their own work Provides an introductory presentation of the everyday mechanical challenges faced by animals and plants Functions as recommended or required reading for advanced undergraduate biology majors taking courses in biomechanics, supplemental reading in a general organismal biology course, or background reading for a biomechanics seminar course

The anthropological approach is the central focus of this study. Laboratories are looked upon with the innocent eye of the traveller in exotic lands, and the societies found in these places are observed with the objective yet compassionate eye of the visitor from a quite other cultural milieu. There are many surprises that await us if we enter a laboratory in this frame of mind... This study is a realistic enterprise, an attempt to truly represent the social order of life in laboratories and institutes of research, just as they are. By bringing the philosophical issues to the surface as matters not of prejudgement but as matters of concern, Karin Knorr-Cetina has developed the first really positive challenge to the philosophy of science since the days of paradigms and internal definitions of meanings

"It appears to us that the universe is structured in a deeply mathematical way. Falling bodies fall with predictable accelerations. Eclipses can be accurately forecast centuries in advance. Nuclear power plants generate electricity according to well-known formulas. But those examples are the tip of the iceberg. In Nature's Numbers, Ian Stewart presents many more, each charming in its own way.. Stewart admirably captures compelling and accessible mathematical ideas along with the pleasure of thinking of them. He writes with clarity and precision. Those who enjoy this sort of thing will love this book."—Los Angeles Times

Abstract:

How we raise young children is one of today's most highly personalized and sharply politicized issues, in part because each of us can claim some level of "expertise." The debate has intensified as discoveries about our development-in the womb and in the first months and years-have reached the popular media. How can we use our burgeoning knowledge to assure the well-being of all young children, for their own sake as well as for the sake of our nation? Drawing from new findings, this book presents important conclusions about nature-versus-nurture, the impact of being born into a working family, the effect of politics on programs for children, the costs and benefits of intervention, and other issues. The committee issues a series of challenges to decision makers regarding the quality of child care, issues of racial and ethnic diversity, the integration of children's cognitive and emotional development, and more. Authoritative yet accessible, From Neurons to Neighborhoods presents the evidence about "brain wiring" and how kids learn to speak, think, and regulate their behavior. It examines the effect of the climate-family, child care, community-within which the child grows.

NatureTeaching About Evolution and the Nature of ScienceNational Academies Press

Today many school students are shielded from one of the most important concepts in modern science: evolution. In engaging and conversational style, Teaching About Evolution and the Nature of Science provides a well-structured framework for understanding and teaching evolution. Written for teachers, parents, and community officials as well as scientists and educators, this book describes how evolution reveals both the great diversity and similarity among the Earth's organisms; it explores how scientists approach the question of evolution; and it illustrates the nature of science as a way of knowing about the natural world. In addition, the book provides answers to frequently asked questions to help readers understand many of the issues and misconceptions about evolution. The book includes sample activities for teaching about evolution and the nature of science. For example, the book includes activities that investigate fossil footprints and population growth that teachers of science can use to introduce principles of evolution. Background information, materials, and step-by-step presentations are provided for each activity. In addition, this volume: Presents the evidence for evolution, including how evolution can be observed today. Explains the nature of science through a variety of examples. Describes how science differs from other human endeavors and why evolution is one of the best avenues for helping students understand this distinction. Answers frequently asked questions about evolution. Teaching About Evolution and the Nature of Science builds on the 1996 National Science Education Standards released by the National Research Council--and offers detailed guidance on how to evaluate and choose instructional materials that support the standards. Comprehensive and practical, this book brings one of today's educational challenges into focus in a balanced and reasoned discussion. It will be of special interest to teachers of science, school administrators, and interested members of the community.

This book is a completely updated, greatly expanded version of the previously successful volume by the author. The Second Edition includes new results and data, and discusses a unified framework and rationale for designing and evaluating image processing algorithms. Written from the viewpoint that image processing supports remote sensing science, this book describes physical models for remote sensing phenomenology and sensors and how they contribute to models for remote-sensing data. The text then presents image processing techniques and interprets them in terms of these models. Spectral, spatial, and geometric models are used to introduce advanced image processing techniques such as hyperspectral image analysis, fusion of multisensor images, and digital elevationmodel extraction from stereo imagery. The material is suited for graduate

level engineering, physical and natural science courses, or practicing remote sensing scientists. Each chapter is enhanced by student exercises designed to stimulate an understanding of the material. Over 300 figures are produced specifically for this book, and numerous tables provide a rich bibliography of the research literature.

"Highly informative and remarkably entertaining." —Elle From forest trails in Korea, to islands in Finland, to eucalyptus groves in California, Florence Williams investigates the science behind nature's positive effects on the brain. Delving into brand-new research, she uncovers the powers of the natural world to improve health, promote reflection and innovation, and strengthen our relationships. As our modern lives shift dramatically indoors, these ideas—and the answers they yield—are more urgent than ever.

The biological influence over the origin, distribution, composition, texture, and mineralogy of carbonate sediments is stressed. Environmental factors such as light, temperature, and water depth directly affect these biological processes. Abiotic carbonate precipitation is discussed. Three carbonate factories are identified: shallow water tropical; deep water mud mound; cool-water factory developed in high and low latitudes. Basic attributes of each factory are developed. The rimmed shelf and ramp facies models of the tropical factory are detailed with the Belize shelf and Middle East Abu Dhabi as examples. The facies tract of the mud mound factory is detailed and the Devonian Canning Basin used as an example. The role of sea-level changes and carbonate sedimentation in platform development is discussed. High sea-level carbonate sediment shedding combined with lowstand sediment starvation is opposite to what is seen in regions of siliciclastic sedimentation. The dominance and importance of the Dunham rock classification is stressed. Finally, lacustrine carbonates are discussed using the African rift lakes as modern examples and developing a simple model of continental rift lake carbonate sedimentation emphasizing potential source rock and reservoir facies. The Brazil Cretaceous subsalt play of the south Atlantic rift and the potential of its African counterpart are discussed.

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