Download Ebook Penrose And Katz Writing In The Sciences Exploring Conventions Of Scientific Discourse 3rd Ed Read Pdf Free

Philosophy and the Sciences for Everyone May 25 2023 What is the origin of our universe? What are dark matter and dark energy? What is our role in the universe as human beings capable of knowledge? What makes us intelligent cognitive agents seemingly endowed with consciousness? Scientific research across both the physical and cognitive sciences raises fascinating philosophical questions. Philosophy and the Sciences For Everyone introduces these questions and more. It begins by asking what good is philosophy for the sciences before examining the following questions: The origin of our universe Dark matter and dark energy Anthropic reasoning in philosophy and cosmology Evolutionary theory and the human mind What is consciousness? Intelligent machines and the human brain Embodied Cognition. Each chapter includes an introduction, summary and study questions and there is a glossary of technical terms. Designed to be used on the corresponding Philosophy and the Sciences online course offered by the University of Edinburgh this book is also a superb introduction to central topics in philosophy of science and popular science.
The Sciences Nov 30 2023 "The Sciences: An Integrated Approach, 9th Edition by James Trefil and Robert Hazen recognizes that science forms a seamless web of knowledge about the universe. This text fully integrates physics, chemistry, astronomy, Earth sciences, and biology and emphasizes general principles and their application to real world situations. The goal of the text is to help students achieve scientific literacy. Applauded by students and instructors for its easy-to-read style and detail appropriate for non-science majors, the ninth edition has been updated to bring the most up-to-date coverage to the students in all areas of science, with increased emphasis on climate change, sustainability, viruses and public health, and an extensively updated chapter on the importance of bioengineering"--
Data Journeys in the Sciences Oct 18 2022 This groundbreaking, open access volume analyses and compares data practices across several fields through the analysis of specific cases of data journeys. It brings together leading scholars in the philosophy, history and social studies of science to achieve two goals: tracking the travel of data across different spaces, times and domains of research practice; and documenting how such journeys affect the use of data as evidence and the knowledge being produced. The volume captures the opportunities, challenges and concerns involved in making data move from the sites in which they are originally produced to sites where they can be integrated with other data, analysed and re-used for a variety of purposes. The in-depth study of data journeys provides the necessary ground to examine disciplinary, geographical and historical differences and similarities in data management, processing and interpretation, thus identifying the key conditions of possibility for the widespread data sharing associated with Big and Open Data. The chapters are ordered in sections that broadly correspond to different stages of the journeys of data, from their generation to the legitimisation of their use for specific purposes. Additionally, the preface to the volume provides a variety of alternative “roadmaps” aimed to serve the different interests and entry points of readers; and the introduction provides a substantive overview of what data journeys can teach about the methods and epistemology of research.
Creative Couples in the Sciences Jul 15 2022 Can two scientists work and live together? Marie and Pierre Curie proved that it was indeed possible to have a happy marriage and do brilliant research together. This collection of seventeen original essays explores the interplay between marriage and scientific work in the lives of two dozen couples in the nineteenth and twentieth century. It is the first book to discuss the professional and personal lives of scientific couples. For much of this period, marriage was the only acceptable way a woman could gain access to the tools, space, and colleagues indispensable to doing science. Yet, collaboration with her husband could also mean the denial of full credit for her work, inability to move to better jobs, and the juggling of domestic and scientific responsibilities. For the husband, collaboration with his skilled, unpaid wife could bring greater achievements than he might have achieved alone, but also meant the suspicion of his professional peers and the necessity of supporting the household. The creative couples described in this volume range from Nobel Prize winners and world-renowned social scientists to obscure field biologists. The essays describe marriages and scientific collaborations that were a joy to both partners, as well as those that proved disastrous. In addition to the editors, the contributors are Marianne Gosztonyi Ainley, Barbara J. Becker, Bernadette Bensaude-Vincent, Mildred Cohn, Janet Bell Garber, Christiane Groeben, Joy Harvey, Susan Hoecker-Drysdale, Pamela M. Henson, Maureen J. Julian, Sylvia W. McGrath, Marilyn Bailey Ogilvie, John Stachel, Linda Tucker, and Sylvia Wiegand. They provide unique insights into the nature of cross-gender collaboration and intimacy. This volume will be of enormous interest to contemporary scientists, to historians of science, and to anyone interested in the ways women and men share marriage and work.
Social Science for What? Mar 11 2022 How the NSF became an important yet controversial patron for the social sciences, influencing debates over their scientific status and social relevance. In the early Cold War years, the U.S. government established the National Science Foundation (NSF), a civilian agency that soon became widely known for its dedication to supporting first-rate science. The agency's 1950 enabling legislation made no mention of the social sciences, although it included a vague reference to "other sciences." Nevertheless, as Mark Solovey shows in this book, the NSF also soon became a major--albeit controversial--source of public funding for them.
Scientific Discovery in the Social Sciences Nov 06 2021 This volume offers selected papers exploring issues arising from scientific discovery in the social sciences. It features a range of disciplines including behavioural sciences, computer science, finance, and statistics with an emphasis on philosophy. The first of the three parts examines methods of social scientific discovery. Chapters investigate the nature of causal analysis, philosophical issues around scale development in behavioural science research, imagination in social scientific practice, and relationships between paradigms of inquiry and scientific fraud. The next part considers the practice of social science discovery. Chapters discuss the lack of genuine scientific discovery in finance where hypotheses concern the cheapness of securities, the logic of scientific discovery in macroeconomics, and the nature of that what discovery with the Solidarity movement

as a case study. The final part covers formalising theories in social science. Chapters analyse the abstract model theory of institutions as a way of representing the structure of scientific theories, the semi-automatic generation of cognitive science theories, and computational process models in the social sciences. The volume offers a unique perspective on scientific discovery in the social sciences. It will engage scholars and students with a multidisciplinary interest in the philosophy of science and social science.
The Sciences of the Artificial, reissue of the third edition with a new introduction by John Laird Jul 27 2023 Herbert Simon's classic work on artificial intelligence in the expanded and updated third edition from 1996, with a new introduction by John E. Laird. Herbert Simon's classic and influential The Sciences of the Artificial declares definitively that there can be a science not only of natural phenomena but also of what is artificial. Exploring the commonalities of artificial systems, including economic systems, the business firm, artificial intelligence, complex engineering projects, and social plans, Simon argues that designed systems are a valid field of study, and he proposes a science of design. For this third edition, originally published in 1996, Simon added new material that takes into account advances in cognitive psychology and the science of design while confirming and extending the book's basic thesis: that a physical symbol system has the necessary and sufficient means for intelligent action. Simon won the Nobel Prize for Economics in 1978 for his research into the decision-making process within economic organizations and the Turing Award (considered by some the computer science equivalent to the Nobel) with Allen Newell in 1975 for contributions to artificial intelligence, the psychology of human cognition, and list processing. The Sciences of the Artificial distills the essence of Simon's thought accessibly and coherently. This reissue of the third edition makes a pioneering work available to a new audience.
From Natural Philosophy to the Sciences Nov 18 2022 During the 19th century, much of the modern scientific enterprise took shape: scientific disciplines were formed, institutions and communities were founded and unprecedented applications to and interactions with other aspects of society and culture occurred. taught us about this exciting time and identify issues that remain unexamined or require reconsideration. They treat scientific disciplines - biology, physics, chemistry, the earth sciences, mathematics and the social sciences - in their specific intellectual and sociocultural contexts as well as the broader topics of science and medicine; science and religion; scientific institutions and communities; and science, technology and industry. From Natural Philosophy to the Sciences should be valuable for historians of science, but also of great interest to scholars of all aspects of 19th-century life and culture.
Women Succeeding in the Sciences Feb 19 2023 Ample evidence has been provided that women historically have suffered numerous social, political, and institutional barriers to their entrance and success in the sciences. The articles in this anthology refocus the discussion and reflect the interdisciplinary nature of the issues surrounding women in the sciences. While the barriers that women have faced as researchers, subjects of research, students of science, and theorists have been well documented, this anthology breaks new ground. It presents the ways women succeed in the sciences, overcome these historical barriers, and contribute to the social practice of science and the philosophy of science in both theory and practice.
Explaining Health Across the Sciences Aug 04 2021 This edited volume aims to better understand the multifaceted phenomenon we call health. Going beyond simple views of health as the absence of disease or as complete well-being, this book unites scientists and philosophers. The contributions clarify the links between health and adaptation, robustness, resilience, or dynamic homeostasis, and discuss how to achieve health and healthy aging through practices such as hormesis. The book is divided into three parts and a conclusion: the first part explains health from within specific disciplines, the second part explores health from the perspective of a bodily part, system, function, or even the environment in which organisms live, and the final part looks at more clinical or practical perspectives. It thereby gathers, across 30 chapters, diverse perspectives from the broad fields of evolutionary and systems biology, immunology, and biogerontology, more specific areas such as odontology, cardiology, neurology, and public health, as well as philosophical reflections on mental health, sexuality, authenticity and medical theories. The overarching aim is to inform, inspire and encourage intellectuals from various disciplines to assess whether explanations in these disparate fields and across biological levels can be sufficiently systematized and unified to clarify the complexity of health. It will be particularly useful for medical graduates, philosophy graduates and research professionals in the life sciences and general medicine, as well as for upper-level graduate philosophy of science students.
Memory Practices in the Sciences Jun 25 2023 How the way we hold knowledge about the past—in books, in file folders, in databases—affects the kind of stories we tell about the past. The way we record knowledge, and the web of technical, formal, and social practices that surrounds it, inevitably affects the knowledge that we record. The ways we hold knowledge about the past—in handwritten manuscripts, in printed books, in file folders, in databases—shape the kind of stories we tell about that past. In this lively and erudite look at the relation of our information infrastructures to our information, Geoffrey Bowker examines how, over the past two hundred years, information technology has converged with the nature and production of scientific knowledge. His story weaves a path between the social and political work of creating an explicit, indexical memory for science—the making of infrastructures—and the variety of ways we continually reconfigure, lose, and regain the past. At a time when memory is so cheap and its recording is so protean, Bowker reminds us of the centrality of what and how we choose to forget. In Memory Practices in the Sciences he looks at three "memory epochs" of the nineteenth, twentieth, and twenty-first centuries and their particular reconstructions and reconfigurations of scientific knowledge. The nineteenth century's central science, geology, mapped both the social and the natural world into a single time package (despite apparent discontinuities), as, in a different way, did mid-twentieth-century cybernetics. Both, Bowker argues, packaged time in ways indexed by their information technologies to permit traffic between the social and natural worlds. Today's sciences of biodiversity, meanwhile, "database the world" in a way that excludes certain spaces, entities, and times. We use the tools of the present to look at the past, says Bowker; we project onto nature our modes of organizing our own affairs.
Mastering Academic Writing in the Sciences Jun 13 2022 This book provides a comprehensive and coherent step-by-step guide to writing in scientific academic disciplines. It is an invaluable resource for those working on a PhD thesis, research paper, dissertation, or report. Writing these documents can be a long and arduous experience for students and their supervisors, and even for experienced researchers. However, this book can hold the key to success. Mapping the steps involved in the writing process - from acquiring and organizing sources of information, to revising early drafts, to proofreading the final product - it provides clear guidance on what to write and how best to write it. Features: Step-by-step approach to academic writing in scientific disciplines Ideal guidance for PhD theses, papers, grant applications, reports and more Includes worked-out examples from real research papers and PhD theses and

templates and worksheets are available online to help readers put specific tasks into practice

The Sociology of Science May 01 2021 "The exploration of the social conditions that facilitate or retard the search for scientific knowledge has been the major theme of Robert K. Merton's work for forty years. This collection of papers [is] a fascinating overview of this sustained inquiry. . . . There are very few other books in sociology . . . with such meticulous scholarship, or so elegant a style. This collection of papers is, and is likely to remain for a long time, one of the most important books in sociology."—Joseph Ben-David, New York Times Book Review "The novelty of the approach, the erudition and elegance, and the unusual breadth of vision make this volume one of the most important contributions to sociology in general and to the sociology of science in particular. . . . Merton's Sociology of Science is a magisterial summary of the field."—Yehuda Elkana, American Journal of Sociology "Merton's work provides a rich feast for any scientist concerned for a genuine understanding of his own professional self. And Merton's industry, integrity, and humility are permanent witnesses to that ethos which he has done so much to define and support."—J. R. Ravetz, American Scientist "The essays not only exhibit a diverse and penetrating analysis and a deal of historical and contemporary examples, with concrete numerical data, but also make genuinely good reading because of the wit, the liveliness and the rich learning with which Merton writes."—Philip Morrison, Scientific American "Merton's impact on sociology as a whole has been large, and his impact on the sociology of science has been so momentous that the title of the book is apt, because Merton's writings represent modern sociology of science more than any other single writer."—Richard McClintock, Contemporary Sociology

Video Research in the Learning Sciences Feb 27 2021 Video Research in the Learning Sciences is a comprehensive exploration of key theoretical, methodological, and technological advances concerning uses of digital video-as-data in the learning sciences as a way of knowing about learning, teaching, and educational processes. The aim of the contributors, a community of scholars using video in their own work, is to help usher in video scholarship and supportive technologies, and to mentor video scholars, so that video research will meet its maximum potential to contribute to the growing knowledge base about teaching and learning. This volume contributes deeply to both to the science of learning through in-depth video studies of human interaction in learning environments—whether classrooms or other contexts—and to the uses of video for creating descriptive, explanatory, or expository accounts of learning and teaching. It is designed around four themes—each with a cornerstone chapter that introduces and synthesizes the cluster of chapters related to it: Theoretical frameworks for video research; Video research on peer, family, and informal learning; Video research on classroom and teacher learning; and Video collaboratories and technological futures. Video Research in the Learning Sciences is intended for researchers, university faculty, teacher educators, and graduate students in education, and for anyone interested in how knowledge is expanded using video-based technologies for inquiries about learning and teaching. Visit the Web site affiliated with this book: www.videoresearch.org

What Are the Arts and Sciences? Jan 09 2022 What constitutes the study of philosophy or physics? What exactly does an anthropologist do, or a geologist or historian? In short, what are the arts and sciences? While many of us have been to college and many aspire to go, we may still wonder just what the various disciplines represent and how they interact. What are their origins, methods, applications, and unique challenges? What kind of people elect to go into each of these fields, and what are the big issues that motivate them? Curious to explore these questions himself, Dartmouth College professor and mathematician Dan Rockmore asked his colleagues to explain their fields and what it is that they do. The result is an accessible, entertaining, and enlightening survey of the ideas and subjects that contribute to a liberal education. The book offers a doorway to the arts and sciences for anyone intrigued by the vast world of ideas.

Metaphor and Analogy in the Sciences Dec 20 2022 This collection of papers contains historical case studies, systematic contributions of a general nature, and applications to specific sciences. The bibliographies of the contributions contain references to all central items from the traditions that are relevant today. While providing access to contemporary views on the issue, the papers illustrate the wide variety of functions of metaphors and analogies, as well as the many connections between the study of some of these functions and other subjects and disciplines.

Encyclopedia of the Sciences of Learning Apr 23 2023 Over the past century, educational psychologists and researchers have posited many theories to explain how individuals learn, i.e. how they acquire, organize and deploy knowledge and skills. The 20th century can be considered the century of psychology on learning and related fields of interest (such as motivation, cognition, metacognition etc.) and it is fascinating to see the various mainstreams of learning, remembered and forgotten over the 20th century and note that basic assumptions of early theories survived several paradigm shifts of psychology and epistemology. Beyond folk psychology and its naïve theories of learning, psychological learning theories can be grouped into some basic categories, such as behaviorist learning theories, connectionist learning theories, cognitive learning theories, constructivist learning theories, and social learning theories. Learning theories are not limited to psychology and related fields of interest but rather we can find the topic of learning in various disciplines, such as philosophy and epistemology, education, information science, biology, and – as a result of the emergence of computer technologies – especially also in the field of computer sciences and artificial intelligence. As a consequence, machine learning struck a chord in the 1980s and became an important field of the learning sciences in general. As the learning sciences became more specialized and complex, the various fields of interest were widely spread and separated from each other; as a consequence, even presently, there is no comprehensive overview of the sciences of learning or the central theoretical concepts and vocabulary on which researchers rely. The Encyclopedia of the Sciences of Learning provides an up-to-date, broad and authoritative coverage of the specific terms mostly used in the sciences of learning and its related fields, including relevant areas of instruction, pedagogy, cognitive sciences, and especially machine learning and knowledge engineering. This modern compendium will be an indispensable source of information for scientists, educators, engineers, and technical staff active in all fields of learning. More specifically, the Encyclopedia provides fast access to the most relevant theoretical terms provides up-to-date, broad and authoritative coverage of the most important theories within the various fields of the learning sciences and adjacent sciences and communication technologies; supplies clear and precise explanations of the theoretical terms, cross-references to related entries and up-to-date references to important research and publications. The Encyclopedia also contains biographical entries of individuals who have substantially contributed to the sciences of learning; the entries are written by a distinguished panel of researchers in the various fields of the learning sciences.

A Source Book in Greek Science Jan 26 2021

Time Use Research in the Social Sciences Jan 21 2023 This collection demonstrates the use and variety of applications of time use

methodology from multidisciplinary, multinational, and multicultural perspectives. A distinguished roster of contributors from such fields as psychology, occupational therapy, sociology, economics, and architecture examines the complex relationship between human time utilization and health and well-being and evaluates the future of time use analysis as a research tool in the social sciences.
Epistemic Virtues in the Sciences and the Humanities Mar 30 2021 This book explores how physicists, astronomers, chemists, and historians in the late nineteenth and early twentieth centuries employed ‘epistemic virtues’ such as accuracy, objectivity, and intellectual courage. In doing so, it takes the first step in providing an integrated history of the sciences and humanities. It assists in addressing such questions as: What kind of perspective would enable us to compare organic chemists in their labs with paleographers in the Vatican Archives, or anthropologists on a field trip with mathematicians poring over their formulas? While the concept of epistemic virtues has previously been discussed, primarily in the contexts of the history and philosophy of science, this volume is the first to enlist the concept in bridging the gap between the histories of the sciences and the humanities. Chapters research whether epistemic virtues can serve as a tool to transcend the institutional disciplinary boundaries and thus help to attain a ‘post-disciplinary’ historiography of modern knowledge. Readers will gain a contextualization of epistemic virtues in time and space as the book shows that scholars themselves often spoke in terms of virtue and vice about their tasks and accomplishments. This collection of essays opens up new perspectives on questions, discourses, and practices shared across the disciplines, even at a time when the neo-Kantian distinction between sciences and humanities enjoyed its greatest authority. Scholars including historians of science and of the humanities, intellectual historians, virtue epistemologists, and philosophers of science will all find this book of particular interest and value.
Writing in the Sciences Jun 06 2024 This rhetorical, multi-disciplinary guide discusses the major genres of science writing including research reports, grant proposals, conference presentations, and a variety of forms of public communication. Writing in the Sciences combines a descriptive approach helping students to recognize distinctive features of common genres in their fields with a rhetorical focus helping them to analyze how, why, and for whom texts are created by scientists. Multiple samples from real research cases illustrate a range of scientific disciplines and audiences for scientific research along with the corresponding differences in focus, arrangement, style, and other rhetorical dimensions. Comparisons among disciplines provide the opportunity for students to identify common conventions in science and investigate variation across fields.
Science Serialized Feb 07 2022 Essays examining the ways in which the Victorian periodical press presented the scientific developments of the time to general and specialized audiences. Nineteenth-century Britain saw an explosion of periodical literature, with the publication of over 100,000 different magazines and newspapers for a growing market of eager readers. The Victorian periodical press became an important medium for the dissemination of scientific ideas. Every major scientific advance in the nineteenth century was trumpeted and analyzed in periodicals ranging from intellectual quarterlies such as the Edinburgh Review to popular weeklies like the Mirror of Literature, from religious periodicals such as the Evangelical Magazine to the atheistic Oracle of Reason. Scientific articles appeared side by side with the latest fiction or political reporting, while articles on nonscientific topics and serialized novels invoked scientific theories or used analogies drawn from science.The essays collected in Science Serialized examine the variety of ways in which the nineteenth-century periodical press represented science to both general and specialized readerships. They explore the role of scientific controversy in the press and the cultural politics of publication. Subject range from the presentation of botany in women's magazines to the highly public dispute between Darwin and Samuel Butler, and from discussions of the mind-body problem to those of energy physics. Contributors include leading scholars in the fields of history of science and literature: Ann B. Shteir, Jonathan Topham, Frank A. J. L. James, Roger Smith, Graeme Gooday, Crosbie Smith, Ian Higginson, Gillian Beer, Bernard Lightman, Helen Small, Gowan Dawson, Jonathan Smith, James G. Paradis, and Harriet Ritvo
A Source Book in Medieval Science May 13 2022 This Source Book explores a millennium of European scientific thought accompanied by critical commentary and annotation; nearly half the selections appear for the first time in the vernacular. Representing "science" in the medieval sense, selections include alchemy, astrology, logic, and theology as well as mathematics, physics, and biology.
Hegel and the Sciences Jun 01 2021 To the scientists and philosophers of our time, Hegel has been either a ne glected or a provocative thinker, a source of irrelevant dark metaphysics or of complex but insightful analysis. His influence upon the work of natural scientists has seemed minimal, in the main; and his stimulus to the nascent sciences of society and to psychology has seemed to be as often an obstacle as an encouragement. Nevertheless his philosophical analysis of knowledge and the knowing process, of concepts and their evolutionary formation, of rationality in its forms and histories, of the stages of empirical awareness and human practice, all set within his endless inquiries into cultural formations from the entire sweep of human experience, must, we believe, be confronted by anyone who wants to understand the scientific consciousness. Indeed, we may wish to situate the changing theories of nature, and of humankind in nature, within a philosophical account of men and women as social practi tioners and as sensing, thinking, feeling centers of privacy; and then we will see the work of Hegel as a major effort to mediate between the purest of epistemological investigations and the most practical of the political and the religious. This book, long delayed to our deep regret, derives from a Symposium on Hegel and the Sciences which was sponsored jointly by the Hegel Society of America and the Boston University Center for Philosophy and History of Science a decade ago.
Sciences Mar 23 2023
Causality in the Sciences Oct 30 2023 Why do ideas of how mechanisms relate to causality and probability differ so much across the sciences? Can progress in understanding the tools of causal inference in some sciences lead to progress in others? This book tackles these questions and others concerning the use of causality in the sciences.
The Sciences of the Artificial Apr 04 2024 The Sciences of the Artificialreveals the design of an intellectual structure aimed at accommodating those empirical phenomena that are "artificial" rather than "natural." The goal is to show how empirical sciences of artificial systems are possible, even in the face of the contingent and teleological character of the phenomena, their attributes of choice and purpose. Developing in some detail two specific examples—human psychology and engineering design—Professor Simon describes the shape of these sciences as they are emerging from developments of the past 25 years. "Artificial" is used here in a very specific sense: to denote systems that have a given form and behavior only because they adapt (or are adapted), in reference to goals or purposes, to their environment. Thus, both man-made artifacts and man himself, in terms of his behavior, are artificial. Simon

characterizes an artificial system as an interface between two environments—inner and outer. These environments lie in the province of "natural science," but the interface, linking them, is the realm of "artificial science." When an artificial system adapts successfully, its behavior shows mostly the shape of the outer environment and reveals little of the structure or mechanisms of the inner. The inner environment becomes significant for behavior only when a system reaches the limits of its rationality and adaptability, and contingency degenerates into necessity.

A History of the Sciences Sep 28 2023

Models and Modeling in the Sciences Sep 04 2021 Biologists, climate scientists, and economists all rely on models to move their work forward. In this book, Stephen M. Downes explores the use of models in these and other fields to introduce readers to the various philosophical issues that arise in scientific modeling. Readers learn that paying attention to models plays a crucial role in appraising scientific work. This book first presents a wide range of models from a number of different scientific disciplines. After assembling some illustrative examples, Downes demonstrates how models shed light on many perennial issues in philosophy of science and in philosophy in general. Reviewing the range of views on how models represent their targets introduces readers to the key issues in debates on representation, not only in science but in the arts as well. Also, standard epistemological questions are cast in new and interesting ways when readers confront the question, "What makes for a good (or bad) model?" All examples from the sciences and positions in the philosophy of science are presented in an accessible manner. The book is suitable for undergraduates with minimal experience in philosophy and an introductory undergraduate experience in science. Key features: The book serves as a highly accessible philosophical introduction to models and modeling in the sciences, presenting all philosophical and scientific issues in a nontechnical manner. Students and other readers learn to practice philosophy of science by starting with clear examples taken directly from the sciences. While not comprehensive, this book introduces the reader to a wide range of views on key issues in the philosophy of science.

Scientific Literacy and the Myth of the Scientific Method Oct 06 2021 What is science? Is social science a science? Why are more and more so-called scientific discoveries being exposed as outright frauds? Henry Bauer tackles these and many more intriguing questions that are emerging from within the academic and scientific communities and attracting attention from the popular media and the general public. Whether one is a specialist or generalist, scientist or humanist, thinker or activist, it is important to understand the place of science and technology in modern life. Popular views about the nature of science and scientific activity contain serious misconceptions that were discarded decades ago by most historians and philosophers of science. The perpetuation of these misconceptions usually surface in the form of frustrating and unproductive discussions about everything from setting policy and defining technical matters to whether one individual's point of view is "right" because it is supported by "scientific facts." According to Bauer, the most serious and widespread misconceptions are that "science" can be discussed as though all sciences share a great deal in common and as though "the scientific method" characterizes all sciences. "Science," argues Bauer, "can be understood only if one recognizes it as a quest by fallible human beings who have evolved ways of interacting that help them gain relatively objective knowledge." In other words, science is a social activity, not simply the result of impersonal methods. Concern has recently arisen over the quality of American education and our declining scientific and research orientation. Debates are emerging about what direction public universities should be taking as we head into the twenty-fist century. Why and to what extent should society support basic scientific research? What should everyone in a democratic society know about science? This book will help readers come to an informed understanding about the place of science and technology in today's world."Provocative. . . . Bauer argues that science does not proceed by the scientific method. If it did, experiments would inspire hypotheses which would then be tested until they generated reliable theories. As Watson and Crick's work [on DNA] shows, an elegant idea is often a headier lure than mere facts."--Newsweek "Sound, sensible . . . and very easy to read. . . . I would strongly recommend this book to anyone who hasn't yet heard that the scientific method is a myth."--Science "This is a book that every science teacher should read and consider. It will certainly affect their views of what science really is and influence their teaching."--The Science Teacher

Books and the Sciences in History May 05 2024 This book, published in 2000, examines the intersection between science and books from early medieval times to the nineteenth century.

Science in the Marketplace Aug 28 2023 The nineteenth century was an age of transformation in science, when scientists were rewarded for their startling new discoveries with increased social status and authority. But it was also a time when ordinary people from across the social spectrum were given the opportunity to participate in science, for education, entertainment, or both. In Victorian Britain science could be encountered in myriad forms and in countless locations: in panoramic shows, exhibitions, and galleries; in city museums and country houses; in popular lectures; and even in domestic conversations that revolved around the latest books and periodicals. Science in the Marketplace reveals this other side of Victorian scientific life by placing the sciences in the wider cultural marketplace, ultimately showing that the creation of new sites and audiences was just as crucial to the growing public interest in science as were the scientists themselves. By focusing attention on the scientific audience, as opposed to the scientific community or self-styled popularizers, Science in the Marketplace ably links larger societal changes—in literacy, in industrial technologies, and in leisure—to the evolution of “popular science.”

Creating a Culture of Accessibility in the Sciences Apr 11 2022 Creating a Culture of Accessibility in the Sciences provides insights and advice on integrating students with disabilities into the STEM fields. Each chapter features research and best practices that are interwoven with experiential narratives. The book is reflective of the diversity of STEM disciplines (life and physical sciences, engineering, and mathematics), and is also reflective of cross-disability perspectives (physical, sensory, learning, mental health, chronic medical and developmental disabilities). It is a useful resource for STEM faculty and university administrators working with students with disabilities, as well as STEM industry professionals interested in accommodating employees with disabilities. Offers a global perspective on making research or work spaces accessible for students with disabilities in the STEM fields Discusses best practices on accommodating and supporting students and demonstrates how these practices can be translated across disciplines Enhances faculty knowledge of inclusive teaching practices, adaptive equipment, accessibility features, and accommodations in science laboratories, which would enable the safe participation of students with disabilities Provides advice for students with disabilities on disclosure and mentoring

Scientific Babel Aug 16 2022 English is the language of science today. No matter which languages you know, if you want your work

seen, studied, and cited, you need to publish in English. But that hasn't always been the case. Though there was a time when Latin dominated the field, for centuries science has been a polyglot enterprise, conducted in a number of languages whose importance waxed and waned over time—until the rise of English in the twentieth century. So how did we get from there to here? How did French, German, Latin, Russian, and even Esperanto give way to English? And what can we reconstruct of the experience of doing science in the polyglot past? With Scientific Babel, Michael D. Gordin resurrects that lost world, in part through an ingenious mechanism: the pages of his highly readable narrative account teem with footnotes—not offering background information, but presenting quoted material in its original language. The result is stunning: as we read about the rise and fall of languages, driven by politics, war, economics, and institutions, we actually see it happen in the ever-changing web of multilingual examples. The history of science, and of English as its dominant language, comes to life, and brings with it a new understanding not only of the frictions generated by a scientific community that spoke in many often mutually unintelligible voices, but also of the possibilities of the polyglot, and the losses that the dominance of English entails. Few historians of science write as well as Gordin, and Scientific Babel reveals his incredible command of the literature, language, and intellectual essence of science past and present. No reader who takes this linguistic journey with him will be disappointed.

Science Images and Popular Images of the Sciences Dec 08 2021 What is a popular image of science and where does it come from? Little is known about the formation of science images and their transformation into popular images of science. In this anthology, contributions from two areas of expertise: image theory and history and the sociology of the sciences, explore techniques of constructing science images and transforming them into highly ambivalent images that represent the sciences. The essays, most of them with illustrations, present evidence that popular images of the sciences are based upon abstract theories rather than facts, and, equally, images of scientists are stimulated by imagination rather than historical knowledge.

The System of the Sciences According to Objects and Methods Sep 16 2022

The Logic of the Sciences and the Humanities Jan 01 2024

Undergraduate Research in the Sciences Feb 02 2024 Undergraduate research enhances the learning experience of students in science, technology, engineering, and mathematics. Undergraduate Research in the Sciences offers a groundbreaking and practical research-based book on the topic. This comprehensive resource addresses how undergraduate research benefits undergraduate participants, including those populations that are underrepresented in the sciences; compares its benefits with other types of educational activities and experiences; and assesses its long-term value to students and faculty as both a scholarly and educational endeavor. In laying out the processes by which these benefits are achieved, this important book can assist faculty and program directors with practical guidance for design and evaluation of both new and existing undergraduate research programs. Praise for Undergraduate Research in the Sciences "This meticulous, definitive study of the effects of working with a faculty member on research as an undergraduate confirms the overall value of the experience by taking us deep into the minds and actions of participants—both faculty and students. As a result we now have many more compelling reasons to get more students involved with research mentors and ways to optimize the benefits for all parties."—George D. Kuh, Chancellor's Professor and director, Indiana University Center for Postsecondary Research "This timely book offers a unique, comprehensive analysis of undergraduate research in the sciences, based on the voices of college students and faculty mentors who have participated in these voyages of discovery. As our nation struggles to train more scientists, this book will be a valuable resource for designing undergraduate research experiences that can build our country's capacity for discovery and innovation."—Arthur B. Ellis, Vice Chancellor for Research, University of California, San Diego "The text is written in a lucid and engaging style and will be a valuable guide to policymakers, academic administrators, and faculty members who want to find ways to engage undergraduates in the 'real work' of investigation."—Judith A. Ramaley, president, Winona State University "This book is a 'must-read' for anyone who directs undergraduates in research. It presents an impressive and rigorous body of work that brings fresh insights into the field of undergraduate research. The next generation of scientists will benefit greatly from the findings and recommendations!"—Jo Handelsman, Howard Hughes Medical Institute Professor, Yale University

Category Theory for the Sciences Mar 03 2024 An introduction to category theory as a rigorous, flexible, and coherent modeling language that can be used across the sciences. Category theory was invented in the 1940s to unify and synthesize different areas in mathematics, and it has proven remarkably successful in enabling powerful communication between disparate fields and subfields within mathematics. This book shows that category theory can be useful outside of mathematics as a rigorous, flexible, and coherent modeling language throughout the sciences. Information is inherently dynamic; the same ideas can be organized and reorganized in countless ways, and the ability to translate between such organizational structures is becoming increasingly important in the sciences. Category theory offers a unifying framework for information modeling that can facilitate the translation of knowledge between disciplines. Written in an engaging and straightforward style, and assuming little background in mathematics, the book is rigorous but accessible to non-mathematicians. Using databases as an entry to category theory, it begins with sets and functions, then introduces the reader to notions that are fundamental in mathematics: monoids, groups, orders, and graphs—categories in disguise. After explaining the "big three" concepts of category theory—categories, functors, and natural transformations—the book covers other topics, including limits, colimits, functor categories, sheaves, monads, and operads. The book explains category theory by examples and exercises rather than focusing on theorems and proofs. It includes more than 300 exercises, with solutions. Category Theory for the Sciences is intended to create a bridge between the vast array of mathematical concepts used by mathematicians and the models and frameworks of such scientific disciplines as computation, neuroscience, and physics.

Discipline and Experience Jul 03 2021 Although the Scientific Revolution has long been regarded as the beginning of modern science, there has been little consensus about its true character. While the application of mathematics to the study of the natural world has always been recognized as an important factor, the role of experiment has been less clearly understood. Peter Dear investigates the nature of the change that occurred during this period, focusing particular attention on evolving notions of experience and how these developed into the experimental work that is at the center of modern science. He examines seventeenth-century mathematical sciences—astronomy, optics, and mechanics—not as abstract ideas, but as vital enterprises that involved practices related to both experience and experiment. Dear illuminates how mathematicians and natural philosophers of the period—Mersenne, Descartes, Pascal, Barrow, Newton, Boyle, and the Jesuits—used experience in their argumentation, and how and why these approaches changed

over the course of a century. Drawing on mathematical texts and works of natural philosophy from all over Europe, he describes a process of change that was gradual, halting, sometimes contradictory—far from the sharp break with intellectual tradition implied by the term "revolution."