

## Philosophy Of Science A Very Short Introduction

Few can imagine a world without telephones or televisions; many depend on computers and the Internet as part of daily life. Without scientific theory, these developments would not have been possible. In this exceptionally clear and engaging introduction to philosophy of science, James Ladyman explores the philosophical questions that arise when we reflect on the nature of the scientific method and the knowledge it produces. He discusses whether fundamental philosophical questions about knowledge and reality might be answered by science, and considers in detail the debate between realists and antirealists about the extent of scientific knowledge. Along the way, central topics in philosophy of science, such as the demarcation of science from non-science, induction, confirmation and falsification, the relationship between theory and observation and relativism are all addressed. Important and complex current debates over underdetermination, inference to the best explanation and the implications of radical theory change are clarified and clearly explained for those new to the subject.

An up-to-date, clear but rigorous introduction to the philosophy of science offering an indispensable grounding in the philosophical understanding of science and its problems. The book pays full heed to the neglected but vital conceptual issues such as the nature of scientific laws, while balancing and linking this with a full coverage of epistemological problems such as our knowledge of such laws. This volume showcases the best of recent research in the philosophy of science. A compilation of papers presented at the EPSA 13, it explores a broad distribution of topics such as causation, truthlikeness, scientific representation, gender-specific medicine, laws of nature, science funding and the wisdom of crowds. Papers are organised into headings which form the structure of the book. Readers will find that it covers several major fields within the philosophy of science, from general philosophy of science to the more specific philosophy of physics, philosophy of chemistry, philosophy of the life sciences, philosophy of psychology, and philosophy of the social sciences and humanities, amongst others. This volume provides an excellent overview of the state of the art in the philosophy of science, as practiced in different European countries and beyond. It will appeal to researchers with an interest in the philosophical underpinnings of their own discipline, and to philosophers who wish to explore the latest work on the themes explored.

Philosophy of Science: An Anthology assembles some of the finest papers in the philosophy of science since 1945, showcasing enduring classics alongside important and innovative recent work. Introductions by the editor highlight connections between selections, and contextualize the articles. Nine sections address topics at the heart of philosophy of science, including realism and the character of scientific theories, scientific explanations and laws of nature, singular causation, and the metaphysical implications of modern physics. Provides an authoritative and accessible overview of the field.

How much faith should we place in what scientists tell us? Is it possible for scientific knowledge to be fully "objective?" What, really, can be defined as science? In the second edition of this Very Short Introduction, Samir Okasha explores the main themes and theories of contemporary philosophy of science, and investigates fascinating, challenging questions such as these. Starting at the very beginning, with a concise overview of the history of science, Okasha examines the nature of fundamental practices such as reasoning, causation, and explanation. Looking at scientific revolutions and the issue of scientific change, he asks whether there is a discernible pattern to the way scientific ideas change over time, and discusses realist versus anti-realist attitudes towards science. He finishes by considering science today, and the social and ethical philosophical questions surrounding modern science. ABOUT THE SERIES: The Very Short Introductions series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis, perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable.

Using formal logic, *Reconstructing the Past* seeks to clarify and resolve the methodological issues that arise when biologists try to answer such questions as whether human beings are more closely related to chimps than they are to gorillas. It explores the case for considering the philosophical idea of simplicity/parsimony as a useful principle for evaluating taxonomic theories of evolutionary relationships. Bringing together philosophy, biology, and statistics, Sober builds a general framework for understanding the circumstances in which parsimony makes sense as a tool of phylogenetic inference. Elliott Sober is Professor of Philosophy at the University of Wisconsin, Madison, and the author of *The Nature of Selection*.

This Very Short Introduction provides a concise overview of the main themes of contemporary philosophy of science. After a short history, the author goes on to investigate the nature of scientific reasoning, scientific explanation and more.

The first in-depth reference in the field that combines scientific knowledge with philosophical inquiry, *The Philosophy of Science: An Encyclopedia* is a two-volume set that brings together an international team of leading scholars to provide over 130 entries on the essential concepts in the philosophy of science. The areas covered include: biology chemistry epistemology and metaphysics physics psychology and mind the social sciences key figures in the combined studies of science and philosophy. The essays represent the most up-to-date philosophical thinking on timeless scientific topics such as: determinism, explanation, laws of nature, perception, individuality, time, and economics as well as timely topics like adaptation, conservation biology, quantum logic, consciousness, evolutionary psychology, and game theory.

*The Handbook Philosophy of Technology and Engineering Sciences* addresses numerous issues in the emerging field of the philosophy of those sciences that are involved in the technological process of designing, developing and making of new technical artifacts and systems. These issues include the nature of design, of technological knowledge, and of technical artifacts, as well as the toolbox of engineers. Most of these have thus far not been analyzed in general philosophy of science, which has traditionally but inadequately regarded technology as mere applied science and focused on physics, biology, mathematics and the social sciences.

- First comprehensive philosophical handbook on technology and the engineering sciences
- Unparalleled in scope including explorative articles
- In depth discussion of technical artifacts and their ontology
- Provides extensive analysis of the nature of engineering design
- Focuses in detail on the role of models in technology

Well-being, happiness and quality of life are now established objects of social and medical research. Does this science produce knowledge that is properly about well-being? What sort of well-being? The definition and measurement of these objects rest on assumptions that are partly normative, partly empirical and partly pragmatic, producing a great diversity of definitions depending on the project and the discipline. This book, written from the perspective of philosophy of science, formulates principles for the responsible production and interpretation of this diverse knowledge. Traditionally, philosophers' goal has been a single concept of well-being and a single theory about what it consists in. But for science this goal is both unlikely and unnecessary. Instead the promise and authority of the science depends on it focusing on the well-being of specific kinds of people in specific contexts. Skeptical arguments notwithstanding, this contextual well-being can be measured in a valid and credible way - but only if scientists broaden their methods to make room for normative considerations and address publicly and inclusively the value-based conflicts that inevitably arise when a measure of well-being is adopted. The science of well-being can be normative, empirical and objective all at once, provided that we line up values to science and science to values.

This book is a balanced and up-to-date introduction to the philosophy of science. It covers all the main topics in the area, as well

as introducing the student to the moral and social reality of science. The author's style is free from jargon, and although he makes use of scientific examples, these should be intelligible to those without much scientific background. At the same time the questions he raises are not merely abstract, so the book will be of interest and concern to scientists as well as philosophers. The author discusses the growth of knowledge of science, the status of scientific theories and their relationship to observational data, the extent to which scientific theories rest on unprovable paradigms, and the nature of scientific explanations. In later chapters he considers probability, scientific reductionism, the relationship between science and technology, and the relationship between scientific and other values.

This comprehensive anthology draws together writings by leading philosophers of science and will prove invaluable for any philosophy of science course.

Scientists have used models for hundreds of years as a means of describing phenomena and as a basis for further analogy. In *Scientific Models in Philosophy of Science*, Daniela Bailer-Jones assembles an original and comprehensive philosophical analysis of how models have been used and interpreted in both historical and contemporary contexts. Bailer-Jones delineates the many forms models can take (ranging from equations to animals; from physical objects to theoretical constructs), and how they are put to use. She examines early mechanical models employed by nineteenth-century physicists such as Kelvin and Maxwell, describes their roots in the mathematical principles of Newton and others, and compares them to contemporary mechanistic approaches. Bailer-Jones then views the use of analogy in the late nineteenth century as a means of understanding models and to link different branches of science. She reveals how analogies can also be models themselves, or can help to create them. The first half of the twentieth century saw little mention of models in the literature of logical empiricism. Focusing primarily on theory, logical empiricists believed that models were of temporary importance, flawed, and awaiting correction. The later contesting of logical empiricism, particularly the hypothetico-deductive account of theories, by philosophers such as Mary Hesse, sparked a renewed interest in the importance of models during the 1950s that continues to this day. Bailer-Jones analyzes subsequent propositions of: models as metaphors; Kuhn's concept of a paradigm; the Semantic View of theories; and the case study approaches of Cartwright and Morrison, among others. She then engages current debates on topics such as phenomena versus data, the distinctions between models and theories, the concepts of representation and realism, and the discerning of falsities in models.

*Very Short Introductions: Brilliant, Sharp, Inspiring Philosophy of physics* is concerned with the deepest theories of modern physics - notably quantum theory, our theories of space, time and symmetry, and thermal physics - and their strange, even bizarre conceptual implications. A deeper understanding of these theories helps both physics, through pointing the way to new theories and new applications, and philosophy, through seeing how our worldview has to change in the light of what we learn from physics. This *Very Short Introduction* explores the core topics in philosophy of physics through three key themes. The first - the nature of space, time, and motion - begins by considering the philosophical puzzles that led Isaac Newton to propose the existence of absolute space, and then discusses how those puzzles change - but do not disappear - in the context of the revolutions in our understanding of space and time that came first from special, and then from general, relativity. The second - the emergence of irreversible behavior in statistical mechanics - considers how the microscopic laws of physics, which know of no distinction between past and future, can be compatible with the melting of ice, the cooling of coffee, the passing of youth, and all the other ways in which the large-scale world distinguishes past from future. The last section discusses quantum theory - the foundation of most of modern physics, yet mysterious to this day. It explains just why quantum theory is so difficult to make sense of, how we might nonetheless attempt to do it, and why the question has been highly relevant to the development of physics, and continues to be so. ABOUT THE SERIES: The *Very Short Introductions* series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis, perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable.

This book explores central philosophical concepts, issues, and debates in the philosophy of science, both historical and contemporary.

Winner of the 2018 Choice Award for Outstanding Academic Title! PRAISE FOR PREVIOUS EDITIONS "This is a brilliantly clear introduction (and indeed reframing) of the history and philosophy of science in terms of worldviews and their elements.... In addition, the book is incredibly well-informed from both a scientific and philosophical angle. Highly recommended." *Scientific and Medical Network* "Unlike many other introductions to philosophy of science, DeWitt's book is at once historically informative and philosophically thorough and rigorous. Chapter notes, suggested readings, and references enhance its value." *Choice* "Written in clear and comprehensible prose and supplemented by effective diagrams and examples, *Worldviews* is an ideal text for anyone new to the history and philosophy of science. As the reader will come to find out, DeWitt is a gifted writer with the unique ability to break down complex and technical concepts into digestible parts, making *Worldviews* a welcoming and not overwhelming book for the introductory reader." *History and Philosophy of the Life Sciences*, vol. 28(2) Now in its third edition, *Worldviews: An Introduction to the History and Philosophy of Science* strengthens its reputation as the most accessible and teachable introduction to the history and philosophy of science on the market. Geared toward engaging undergraduates and those approaching the history and philosophy of science for the first time, this intellectually-provocative volume takes advantage of its author's extensive teaching experience, parsing complex ideas using straightforward and sensible examples drawn from the physical sciences. Building on the foundations which earned the book its critical acclaim, author Richard DeWitt considers fundamental issues in the philosophy of science through the historical worldviews that influenced them, charting the evolution of Western science through the rise and fall of dominant systems of thought. Chapters have been updated to include discussion of recent findings in quantum theory, general relativity, and evolutionary theory, and two new chapters exclusive to the third edition enrich its engagement with radical developments in contemporary science. At a time in modern history when the nature of truth, fact, and reality seem increasingly controversial, the third edition of *Worldviews* presents complex concepts with clarity and verve, and prepares inquisitive minds to engage critically with some of the most exciting questions in the philosophy of science.

Any serious student attempting to better understand the nature, methods, and justification of science will value Alex Rosenberg and Lee McIntyre's updated and substantially revised fourth edition of *Philosophy of Science: A Contemporary Introduction*. Weaving lucid explanations with clear analyses, the volume is a much-used, thematically oriented introduction to the field. The fourth edition has been thoroughly rewritten based on instructor and student feedback, to improve readability and accessibility, without sacrificing depth. It retains, however, all of the logically structured, extensive coverage of earlier editions, which a review in

the journal *Teaching Philosophy* called “the industry standard” and “essential reading.” Key Features of the Fourth Edition: Revised and rewritten for readability based on feedback from student and instructor surveys. Updated text on the problem of underdetermination, social science, and the realism/antirealism debate. Improved continuity between chapters. Revised and updated Study Questions and annotated Suggested Readings at the end of each chapter. Updated Bibliography. For a list of relevant online primary sources, please visit: [www.routledge.com/9781138331518](http://www.routledge.com/9781138331518).

By applying research in artificial intelligence to problems in the philosophy of science, Paul Thagard develops an exciting new approach to the study of scientific reasoning. This approach uses computational ideas to shed light on how scientific theories are discovered, evaluated, and used in explanations. Thagard describes a detailed computational model of problem solving and discovery that provides a conceptually rich yet rigorous alternative to accounts of scientific knowledge based on formal logic, and he uses it to illuminate such topics as the nature of concepts, hypothesis formation, analogy, and theory justification.

How does science work? Does it tell us what the world is “really” like? What makes it different from other ways of understanding the universe? In *Theory and Reality*, Peter Godfrey-Smith addresses these questions by taking the reader on a grand tour of more than a hundred years of debate about science. The result is a completely accessible introduction to the main themes of the philosophy of science. Examples and asides engage the beginning student, a glossary of terms explains key concepts, and suggestions for further reading are included at the end of each chapter. Like no other text in this field, *Theory and Reality* combines a survey of recent history of the philosophy of science with current key debates that any beginning scholar or critical reader can follow. The second edition is thoroughly updated and expanded by the author with a new chapter on truth, simplicity, and models in science.

Philosophy of Science A Very Short Introduction Oxford University Press

This broad and insightful book presents current scholarship in important subfields of philosophy of science and addresses an interdisciplinary and multidisciplinary readership. It groups carefully selected contributions into the four fields of I) philosophy of physics, II) philosophy of life sciences, III) philosophy of social sciences and values in science, and IV) philosophy of mathematics and formal modeling. Readers will discover research papers by Paul Hoyningen-Huene, Keizo Matsubara, Kian Salimkhani, Andrea Reichenberger, Anne Sophie Meincke, Javier Suárez, Roger Deulofeu, Ludger Jansen, Peter Hucklenbroich, Martin Carrier, Elizaveta Kostrova, Lara Huber, Jens Harbecke, Antonio Piccolomini d’Aragona and Axel Gelfert. This collection fosters dialogue between philosophers of science working in different subfields, and brings readers the finest and latest work across the breadth of the field, illustrating that contemporary philosophy of science has successfully broadened its scope of reflection. It will interest and inspire a wide audience of philosophers as well as scholars of the natural sciences, social sciences and the humanities. The volume shares selected contributions from the prestigious second triennial conference of the German Society for Philosophy of Science/ Gesellschaft für Wissenschaftsphilosophie (GWP.2016, March 8, 2016 – March 11, 2016).

A short and accessible introduction to philosophy of science for students and researchers across the life sciences.

A state-of-the-art guide to the fast-developing area of the philosophy of science.

Originally published as *Scientific Research*, this pair of volumes constitutes a fundamental treatise on the strategy of science. Mario Bunge, one of the major figures of the century in the development of a scientific epistemology, describes and analyzes scientific philosophy, as well as discloses its philosophical presuppositions. This work may be used as a map to identify the various stages in the road to scientific knowledge. *Philosophy of Science* is divided into two volumes, each with two parts. Part 1 offers a preview of the scheme of science and the logical and semantical tool that will be used throughout the work. The account of scientific research begins with part 2, where Bunge discusses formulating the problem to be solved, hypothesis, scientific law, and theory. The second volume opens with part 3, which deals with the application of theories to explanation, prediction, and action. This section is graced by an outstanding discussion of the philosophy of technology. Part 4 begins with measurement and experiment. It then examines risks in jumping to conclusions from data to hypotheses as well as the converse procedure. Bunge begins this mammoth work with a section entitled “How to Use This Book.” He writes that it is intended for both independent reading and reference as well as for use in courses on scientific method and the philosophy of science. It suits a variety of purposes from introductory to advanced levels. *Philosophy of Science* is a versatile, informative, and useful text that will benefit professors, researchers, and students in a variety of disciplines, ranging from the behavioral and biological sciences to the physical sciences.

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.

*Current Controversies in Philosophy of Science* asks twelve philosophers to debate six questions that are driving contemporary work in this area of philosophy. The questions are: I. Are Boltzmann Brains Bad? II. Does Mathematical Explanation Require Mathematical Truth? III. Does Quantum Mechanics Suggest Spacetime is Nonfundamental? IV. Is Evolution Fundamental When It Comes to Defining Biological Ontology? V. Is Chance Ontologically Fundamental? VI. Are Sexes Natural Kinds? These debates explore the philosophical foundations of particular scientific disciplines, while also examining more general issues in the philosophy of science. The result is a book that’s perfect for the advanced philosophy student, building up their knowledge of the foundations of the field and engaging with its cutting-edge questions. Preliminary descriptions of each chapter, annotated lists of further readings for each controversy, and study questions for each chapter help provide clearer and richer snapshots of active controversies for all readers.

A masterful survey of the history of Marxist philosophy of science Sheehan retraces the development of a Marxist

philosophy of science through detailed and highly readable accounts of the debates that shaped it. Skilfully deploying a large cast of characters, Sheehan shows how Marx and Engel's ideas on the development and structure of natural science had a crucial impact on the work of early twentieth-century natural philosophers, historians of science, and natural scientists. With a new afterword by the author.

The question of the proper role of metaphysics in philosophy of science is both significant and contentious. The last few decades have seen considerable engagement with philosophical projects aptly described as "the metaphysics of science:" inquiries into natural laws and properties, natural kinds, causal relations, and dispositions. At the same time, many metaphysicians have begun moving in the direction of more scientifically-informed ("scientific" or "naturalistic") metaphysics. And yet many philosophers of science retain a deep suspicion about the significance of metaphysical investigations into science. This volume of new essays explores a broadly methodological question: what role should metaphysics play in our philosophizing about science? These new essays, written by leading philosophers of science, address this question both through ground-level investigations of particular issues in the metaphysics of science and by more general methodological inquiry.

Philosophy of Science: A Unified Approach combines a general introduction to philosophy of science with an integrated survey of all its important subfields. As the book's subtitle suggests, this excellent overview is guided methodologically by "a unified approach" to philosophy of science: behind the diversity of scientific fields one can recognize a methodological unity of the sciences. This unity is worked out in this book, revealing all the while important differences between subject areas. Structurally, this comprehensive book offers a two-part approach, which makes it an excellent introduction for students new to the field and a useful resource for more advanced students. Each chapter is divided into two sections. The first section assumes no foreknowledge of the subject introduced, and the second section builds upon the first by bringing into the conversation more advanced, complementary topics. Definitions, key propositions, examples and figures overview all of the core material. At the end of every chapter there are selected readings and exercises (with solutions at the end of the book). The book also includes a comprehensive bibliography and an index.

Current academic philosophy is being challenged from several angles. Subdisciplinary specialisations often make it challenging to articulate philosophy's relevance for the societal questions of our day. Additionally, the success of the 'scientific method' puts pressure on philosophers to articulate their methods and specify how these can be successful. How does philosophical progress come about? What can philosophy contribute to our understanding of today's world? Moreover, can it also contribute to resolving urgent societal challenges, such as anthropogenic climate change? This edited volume evaluates the place of philosophy in the age of science. It addresses three related sub-themes: philosophical progress, philosophical method and philosophy's societal relevance. Fourteen authors engage with these sub-themes, focusing on the topics of their philosophical expertise, such as the philosophy of religion, evolutionary ethics and the nature of free will. In doing so, they explore their methods of enquiry, and look at how progress in their research comes about.

Scientists use concepts and principles that are partly specific for their subject matter, but they also share part of them with colleagues working in different fields. Compare the biological notion of a 'natural kind' with the general notion of 'confirmation' of a hypothesis by certain evidence. Or compare the physical principle of the 'conservation of energy' and the general principle of 'the unity of science'. Scientists agree that all such notions and principles aren't as crystal clear as one might wish. An important task of the philosophy of the special sciences, such as philosophy of physics, of biology and of economics, to mention only a few of the many flourishing examples, is the clarification of such subject specific concepts and principles. Similarly, an important task of 'general' philosophy of science is the clarification of concepts like 'confirmation' and principles like 'the unity of science'. It is evident that clarification of concepts and principles only makes sense if one tries to do justice, as much as possible, to the actual use of these notions by scientists, without however following this use slavishly. That is, occasionally a philosopher may have good reasons for suggesting to scientists that they should deviate from a standard use. Frequently, this amounts to a plea for differentiation in order to stop debates at cross-purposes due to the conflation of different meanings. While the special volumes of the series of Handbooks of the Philosophy of Science address topics relative to a specific discipline, this general volume deals with focal issues of a general nature. After an editorial introduction about the dominant method of clarifying concepts and principles in philosophy of science, called explication, the first five chapters deal with the following subjects. Laws, theories, and research programs as units of empirical knowledge (Theo Kuipers), various past and contemporary perspectives on explanation (Stathis Psillos), the evaluation of theories in terms of their virtues (Ilkka Niiniluoto), and the role of experiments in the natural sciences, notably physics and biology (Allan Franklin), and their role in the social sciences, notably economics (Wenceslao Gonzalez). In the subsequent three chapters there is even more attention to various positions and methods that philosophers of science and scientists may favor: ontological, epistemological, and methodological positions (James Ladyman), reduction, integration, and the unity of science as aims in the sciences and the humanities (William Bechtel and Andrew Hamilton), and logical, historical and computational approaches to the philosophy of science (Atocha Aliseda and Donald Gillies). The volume concludes with the much debated question of demarcating science from nonscience (Martin Mahner) and the rich European-American history of the philosophy of science in the 20th century (Friedrich Stadler). Comprehensive coverage of the philosophy of science written by leading philosophers in this field Clear style of writing for an interdisciplinary audience No specific pre-knowledge required Both an anthology and an introductory textbook, Philosophy of Science: The Central Issues offers instructors and students a comprehensive anthology of fifty-two primary texts by leading philosophers in the field and provides extensive editorial commentary that places the readings in a wide philosophical context.

How much faith should we place in what scientists tell us? Is it possible for scientific knowledge to be fully 'objective'?

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As the field of Science and Technology Studies (STS) has become more established, it has increasingly hidden its philosophical roots. While the trend is typical of disciplines striving for maturity, Steve Fuller, a leading figure in the field, argues that STS has much to lose if it abandons philosophy. In his characteristically provocative style, he offers the first sustained treatment of the philosophical foundations of STS and suggests fruitful avenues for further research. With stimulating discussions of the Science Wars, the Intelligent Design Theory controversy, and theorists such as Donna Haraway and Bruno Latour, Philosophy of Science and Technology Studies is required reading for students and scholars in STS and the philosophy of science.

This textbook offers an introduction to the philosophy of science. It helps undergraduate students from the natural, the human and social sciences to gain an understanding of what science is, how it has developed, what its core traits are, how to distinguish between science and pseudo-science and to discover what a scientific attitude is. It argues against the common assumption that there is fundamental difference between natural and human science, with natural science being concerned with testing hypotheses and discovering natural laws, and the aim of human and some social sciences being to understand the meanings of individual and social group actions. Instead examines the similarities between the sciences and shows how the testing of hypotheses and doing interpretation/hermeneutics are similar activities. The book makes clear that lessons from natural scientists are relevant to students and scholars within the social and human sciences, and vice versa. It teaches its readers how to effectively demarcate between science and pseudo-science and sets criteria for true scientific thinking. Divided into three parts, the book first examines the question What is Science? It describes the evolution of science, defines knowledge, and explains the use of and need for hypotheses and hypothesis testing. The second half of part I deals with scientific data and observation, qualitative data and methods, and ends with a discussion of theories on the development of science. Part II offers philosophical reflections on four of the most important concepts in science: causes, explanations, laws and models. Part III presents discussions on philosophy of mind, the relation between mind and body, value-free and value-related science, and reflections on actual trends in science.

Over the last forty years the philosophy of biology has emerged as an important sub-discipline of the philosophy of science. Covering some of science's most divisive topics, such as philosophical issues in genetics, it also encompasses areas where modern biology has increasingly impinged on traditional philosophical questions, such as free will, essentialism, and nature vs nurture. In this Very Short Introduction Samir Okasha outlines the core issues with which contemporary philosophy of biology is engaged. Offering a whistle-stop tour of the history of biology, he explores key ideas and paradigm shifts throughout the centuries, including areas such as the theory of evolution by natural selection; the concepts of function and design; biological individuality; and the debate over adaptationism. Throughout Okasha makes clear the relevance of biology for understanding human beings, human society, and our place in the natural world, and the importance of engaging with these issues. ABOUT THE SERIES: The Very Short Introductions series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis, perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable.

Philosophy of science studies the methods, theories, and concepts used by scientists. It mainly developed as a field in its own right during the twentieth century and is now a diversified and lively research area. This book surveys the current state of the discipline by focusing on central themes like confirmation of scientific hypotheses, scientific explanation, causality, the relationship between science and metaphysics, scientific change, the relationship between philosophy of science and science studies, the role of theories and models, unity of science. These themes define general philosophy of science. The book also presents sub-disciplines in the philosophy of science dealing with the main sciences: logic, mathematics, physics, biology, medicine, cognitive science, linguistics, social sciences, and economics. While it is common to address the specific philosophical problems raised by physics and biology in such a book, the place assigned to the philosophy of special sciences is much more unusual. Most authors collaborate on a regular basis in their research or teaching and share a common vision of philosophy of science and its place within philosophy and academia in general. The chapters have been written in close accordance with the three editors, thus achieving strong unity of style and tone.

This popular reader has been vastly updated with ten stimulating new selections on the natural and the social sciences: feminism; postmodernism, relativism, and science; confirmation, acceptance, and theory; explanatory unification; and science and values. Retaining the best essays from the previous editions, the editors have added important new pieces to maintain this influential text's relevance.

Major figures of twentieth-century philosophy were enthralled by the revolution in formal logic, and many of their arguments are based on novel mathematical discoveries. Hilary Putnam claimed that the Lwenheim-Skolem theorem refutes the existence of an objective, observer-independent world; Bas van Fraassen claimed that arguments against

empiricism in philosophy of science are ineffective against a semantic approach to scientific theories; W. V. O. Quine claimed that the distinction between analytic and synthetic truths is trivialized by the fact that any theory can be reduced to one in which all truths are analytic. This book dissects these and other arguments through in-depth investigation of the mathematical facts undergirding them. It presents a systematic, mathematically rigorous account of the key notions arising from such debates, including theory, equivalence, translation, reduction, and model. The result is a far-reaching reconceptualization of the role of formal methods in answering philosophical questions.

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