



# Philosophy of Science: Very Short Introduction

*Samir Okasha*

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## **Philosophy of Science: Very Short Introduction** Samir Okasha

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.

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## **Philosophy of Science: Very Short Introduction Details**

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The book has 7 chapters. The first chapter deals with the question of 'What science is'. The author gives some illuminating examples from the history of science, mostly from physics and biology. Then, he expounds on the concepts of pseudoscience and Popper's demarcation criterion. Thereupon, he uses Marx and Freud's theories as examples of un-falsifiable, pseudo-scientific claims.

Chapter 2 starts with defining induction / deduction. Subsequently, he delves into Hume's problem of induction. When dealing with the problem, he brings about all the answers from different perspectives. Not a single answer is treated as the one true solution to the problem. I guess the reader must make their own mind up. I also liked the discussion on different interpretations of probability. Unfortunately, it's all too common to equate probabilities with proportions. For example, if you read that the probability of an Australian living to 100 years of age is 1 in 10, then you assume that this is equivalent of saying one-tenth of Australians live to the age of 100. No, they don't!

Chapter 3 goes into more technical stuff like Hempel's covering law, which states that scientific questions are usually 'explanation-seeking why questions'. Apparently, the concept of 'explanation' in science is not as simple as it may seem. The concept of causality just adds up to problem. I need to read more on these problems.

The next chapter is about realism / anti-realism debate among philosophers of science. I'm more inclined towards realism. Even though I always thought this is an obvious fact, when you look more closely, it gets messy and complicated. Still, I think realism is the way to go.

Chapter 5 is all about Kuhn, paradigms and scientific revolutions. I may not agree with the extreme interpretations of these ideas, but they sure make you more humble! I suppose understanding the psychological and social underpinnings of science can lead to a less idealistic and simplistic view of how science works. They should not however undermine the value of science. Notwithstanding all its limitations, science is still the best thing we have. Go science!

Chapter 6 is comprised of three case studies from physics, biology and psychology. They were all very interesting, but quite limited, and they left me with many unanswered questions. Likewise, the last chapter held much promise, but again was too brief to cover many intriguing ideas about the future of science. I give the book 4/5 stars. I recommend it for those who want a basic introduction to philosophy of science.

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### **Nika Mansouri Ghiasi says**

It was a greaaaaat book-suggested to me by a really good friend-It made me think about the aspects of science i hadn't thought of before-to be honest with you a book teaching you how to talk more 'gholonbe solonbe' to others!;) )

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### **Mohamed al-Jamri says**

I gave it five stars when I first read it three years ago. Now I'm giving it two only. This shows how much one can change.

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## C says

This is the ideal introduction for someone with little to no background regarding the philosophy of science. It is probably too simple for anyone with a bachelors degree in philosophy. Ergo, if you're a science student, who hasn't taken a philosophy course, you may like this book.

The book first sets out to show what are the primary philosophical issues regarding science. For instance, what is it that connects biology, physics, and chemistry, but not biblical studies, and witch craft. Is it method? That seems dubious, since advances are often made in the biology, physics, and chemistry, through various methods. The author then focuses on the famous philosopher of science Karl Popper, and his theory of falsification. Popper thought what made a theory scientific was its ability to be falsified. We cannot falsify whether or not God exists outside space and time, therefore it isn't a scientific claim, like the boiling point of water. Of course Popper's theory has its own problems which Okasha points out.

The next chapter deals with the difference between deduction, induction, inference to the best explanation, and Hume's critique of science and induction.

The following chapter grapples with the debate between materialism, idealism, realism, and anti-realism. Realist believe that there is an independent world, that exists and behaves as science says, regardless of whether or not humans are around to perceive it. E.g., if a tree falls in the woods, and no one is around to hear it, it still makes a sound. Anti-realist believe that science is more instrumentally fruitful, but that there are large parts of the cosmos, or our perceptual tools which are incapable of getting how the universe really is.

Finally the book ends talking about particular problems in the sciences, and critiques of Scientism (the belief that science can answer and/or address all questions).

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