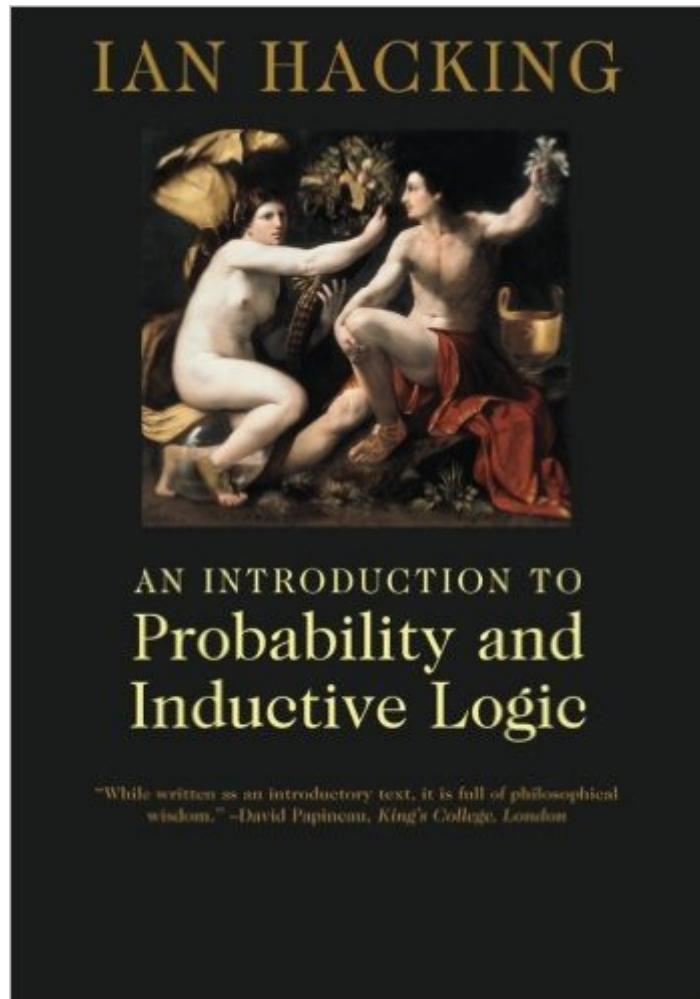# An Introduction To Probability And Inductive Logic

Synopsis

This is an introductory textbook on probability and induction written by one of the world's foremost philosophers of science. The book has been designed to offer maximal accessibility to the widest range of students (not only those majoring in philosophy) and assumes no formal training in elementary symbolic logic. It offers a comprehensive course covering all basic definitions of induction and probability, and considers such topics as decision theory, Bayesianism, frequency ideas, and the philosophical problem of induction. The key features of the book are: * A lively and vigorous prose style* Lucid and systematic organization and presentation of the ideas* Many practical applications* A rich supply of exercises drawing on examples from such fields as psychology, ecology, economics, bioethics, engineering, and political science* Numerous brief historical accounts of how fundamental ideas of probability and induction developed.* A full bibliography of further reading Although designed primarily for courses in philosophy, the book could certainly be read and enjoyed by those in the social sciences (particularly psychology, economics, political science and sociology) or medical sciences such as epidemiology seeking a reader-friendly account of the basic ideas of probability and induction. Ian Hacking is University Professor, University of Toronto. He is Fellow of the Royal Society of Canada, Fellow of the British Academy, and Fellow of the American Academy of Arts and Sciences. he is author of many books including five previous books with Cambridge (The Logic of Statistical Inference, Why Does Language Matter to Philosophy?, The Emergence of Probability, Representing and Intervening, and The Taming of Chance).

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Customer Reviews

(FOUR AND A HALF STARS)This is more an intro to the PHILOSOPHY of probability and inductive logic than an intro to the MATHEMATICS of probability of inductive logic, although some of the basic mathematical ideas are covered (which is useful if you're gonna discuss the philosophy). Do not get this book if you're just looking for a typical mathematical intro to statistics. But DO get this book if you want to know about the foundations of Bayesianism or are interested in the Frequentists vs. Bayesian debate. It is the best intro out there on the Frequentists/Bayesians issue, and it is extremely helpful for someone who is trying to get a handle on Bayesian reasoning. Also, those who are more into the mathematical aspects of probability could find this book useful in giving them a wider perspective on the subject. On the whole, it's clearly written and fun to read, although it is not an "easy" book. A basic knowledge of probability theory and some initial grasp of induction are good to have before reading this. But overall, it's highly recommended for those who want to know about the conceptual underpinnings of probability/induction in general, and Bayesian and Frequentism specifically.

The best thing about this book is that it teachs basic probability theory while keeping the reader constantly aware of the on-going debate regarding what it means to talk in terms of probabilities, and of how that debate has shaped the development of probability theory. If you are a student taking a course in probability and statistics who would like to genuinely understand the conceptual basis of all those formulas they are teaching you, I suggest you read this book.Some readers will be disappointed by this book. Since the book concentrates on the conceptual basis of probability and inductive logic, it does not give the reader enough technical tools to really do much applied mathematics. On the other hand, by the time Hacking gets around to discussing what students of philosophy will likely view as the big philosophical pay-off of probability theory (i.e. Bayesian and frequentist contributions to the problem of justifying induction) he devotes to them a mere 20 pages of not terribly deep discussion.

I would HIGHLY recommend this book for anyone (including business men) who must make decisions with incomplete information and under uncertainty. Instead of focusing on the mechanics of statistics, it focuses on how to think about risky propositions.I bought this book while working on a particular problem in machine learning, at a point where I had started realizing that I was losing clarity on my definition of probability. I was using the mechanics, but didn't clearly understand why the use was valid. This seemed an odd and embarrassing circumstance at the time, how could I not

understand what "probability" means? As it turns out this confusion is one shared broadly in history of science, and in current applications of statistical mechanics.Prof Hacking's writing is clear and entertaining, clearly aimed at engaging the reading audience.

This is a first rate introductory text prepared by a well known philosopher and expert on the logic and history of probability & statistics. The approach is disarmingly simple. Hacking avoids complicated math and proofs and teaches via the intuitive appeals to the underlying logic of these topics. Hacking begins with an intuitively based discussion of basic features of probability theory, expectation, Bayes rule, and decision analysis. This is followed by a particularly good exposition of the different senses of probability; belief-Bayesian and frequentist. Hacking shows how both approaches can be used fruitfully and rigorously in even mundane problems. These sections are followed by very nice chapters on the underlying logic of normal distributions, statistical hypothesis testing, and confidence intervals. This is the diametrical opposite of the cookbook approach used often in many statistics books and provides very nice understanding of key features of statistical methods. I never appreciated the strength of the confidence interval approach before reading this book. Hacking concludes with some concise but thoughtful chapters on the philosophical implications of these ideas, particularly as applied to the classic problem of induction. The quality of writing is excellent and the book features a large number of good examples and problems to work through. Strongly recommended to individuals who want to learn more about the basis of statistical methods.

I love this book. It is easy to read and provides excellent examples. Not only does it introduce the reader to Bayes' Theorem, but it also covers various gambler's fallacies. A nice addition is the lucid philosophical commentary that keeps the reader informed about the various debates about inductive logic that have taken place over the ages. With this book, a beginner can get up-to-date with the theorem (Bayes') that has recently taken both the philosophy of science and probability worlds by storm.It is great to see a solid logic book for philosophy that is not deductive. Inductive logic is important too!

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