

Springer

1st  
edition1st ed. 2019, XXIV, 347 p.  
79 illus., 13 illus. in color.**Printed book**

Softcover

**Printed book**

Softcover

ISBN 978-3-030-04542-5

\$ 59,99

Available

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Professional Books (2)

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Undergraduate textbook

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**Physics : Mathematical Methods in Physics**

Lawrence, Andy, University of Edinburgh, Edinburgh, UK

# Probability in Physics

**An Introductory Guide**

- Explains the use of probability in physics motivated by real physics examples throughout
- Presents a modern approach to statistics, with a harmonised and simplified view of traditional and Bayesian approaches
- Emerges from a one-semester twenty-lecture course taught to junior honours students
- Aims to cover the role of probability anywhere in physics
- Offers exercises and solutions

This textbook presents an introduction to the use of probability in physics, treating introductory ideas of both statistical physics and of statistical inference, as well the importance of probability in information theory, quantum mechanics, and stochastic processes, in a unified manner. The book also presents a harmonised view of frequentist and Bayesian approaches to inference, emphasising their complementary value. The aim is to steer a middle course between the "cookbook" style and an overly dry mathematical statistics style. The treatment is driven by real physics examples throughout, but developed with a level of mathematical clarity and rigour appropriate to mid-career physics undergraduates. Exercises and solutions are included.

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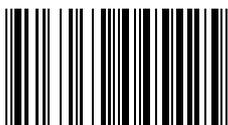
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