Textbook checklist

Title: Stochastic Tools in Mathematics and Science
Authors: Alexandre J Chorin, Ole H Hald
Edition: Second
Publisher: Springer
Price: ???
ISBN: 978-1-4419-1001-1

The compact text covers mathematical basics, probability, brownian motion, stationary stochastic processes, before introducing statistical mechanics and applying these techniques to both equilibrium and time-dependent situations. The classic Ising model is dealt with, before addressing more advanced time-dependent problems including memory. Feymann diagrams are used to illustrate the solution of the heat equation with a potential. It contains a straightforward discussion of the Langevin/Ornstein-Uhlenbeck equation and its relationship with the Fokker-Planck equation that might allow this book to be used as background reading for more financially orientated courses.

Aimed at: Undergraduate (fourth year) or, more likely, postgraduate mathematicians or theoretical physicists with an interest in interdisciplinary mathematics.

Presentation – layout and clarity:
Condensed and fast-paced, the main text is only 159 pages long. Each chapter is finished with a raft of exercises.

Would you recommend it?
Yes, as a good lecture text for advanced students with an interest in interdisciplinary applications.

140 words (excluding section headings).