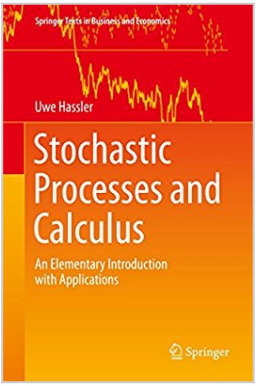

Stochastic Processes and Calculus: An Elementary Introduction with Applications (Springer Texts in Business and Economics)

By Uwe Hassler

Stochastic Processes and Calculus: An Elementary Introduction with Applications (Springer Texts in Business and Economics) By Uwe Hassler

This textbook gives a comprehensive introduction to stochastic processes and calculus in the fields of finance and economics, more specifically mathematical finance and time series econometrics. Over the past decades stochastic calculus and processes have gained great importance, because they play a decisive role in the modeling of financial markets and as a basis for modern time series econometrics. Mathematical theory is applied to solve stochastic differential equations and to derive limiting results for statistical inference on nonstationary processes.

This introduction is elementary and rigorous at the same time. On the one hand it gives a basic and illustrative presentation of the relevant topics without using many technical derivations. On the other hand many of the procedures are presented at a technically advanced level: for a thorough understanding, they are to be proven. In order to meet both requirements jointly, the present book is equipped with a lot of challenging problems at the end of each chapter as well as with the corresponding detailed solutions. Thus the virtual text - augmented with more than 60 basic examples and 40 illustrative figures - is rather easy to read while a part of the technical arguments is transferred to the exercise problems and their solutions.

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Editorial Review

Review

“The book is quite readable and can be used as a textbook for the application of mathematical theory in the area of econometrics. Also, a mathematician might benefit from an intuitive exposition of some different and specific types of integration appearing in the theory of stochastic processes. The book might then serve as starting point for a more detailed study of the mathematical foundation of the topics presented.” (Ludger Overback, Mathematical Reviews, October, 2016)

“The book covers both discrete and continuous time stochastic processes, and it is of course in the second area where mathematical intricacies abound. … All this is very much up to date and provides a most useful introduction to modern time series methods for anybody wishing to understand the mechanics without having to dig too deep into the mathematical foundations.” (Walter Krämer, Statistics Papers, Vol. 57, 2016)

“The construction of this book is based on the author experience of 15 years of teaching stochastic processes and calculus. … book is therefore a very successful work on the task of providing the largest number of readers an introduction to stochastic processes and calculus simultaneously accessible and rigorous, with a wide exemplification of applications in various fields. Very important for readers in the fields of mathematics, finance and econometrics and also in biology, engineering or physics, but not only.” (Prof. Dr. Manuel Alberto M. Ferreira, Acta Scientiae et Intellectus, Vol. 2 (2), 2016)

From the Back Cover

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About the Author
Uwe Hassler studied mathematics and economics at Freie Universität Berlin and specialized in statistics and econometrics at the London School of Economics. He completed his doctoral studies in 1993 at Freie Universität. Hassler published in leading field journals such as Econometric Theory, Journal of Econometrics

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