

1. Record Nr.	UNINA9910467085303321
Autore	Braumann Carlos A. <1951->
Titolo	Introduction to stochastic differential equations with applications to modelling in biology and finance // Carlos A. Braumann (University of Evora, Evora [Portugal])
Pubbl/distr/stampa	Hoboken, NJ ; ; West Sussex, UK : , : Wiley, , 2019
ISBN	1-119-16607-1 1-119-16608-X 1-119-16609-8
Edizione	[1st edition]
Descrizione fisica	1 online resource (355 pages)
Disciplina	519.2/2
Soggetti	Stochastic differential equations Biology - Mathematical models Finance - Mathematical models Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Sommario/riassunto	A comprehensive introduction to the core issues of stochastic differential equations and their effective application Introduction to Stochastic Differential Equations with Applications to Modelling in Biology and Finance offers a comprehensive examination to the most important issues of stochastic differential equations and their applications. The author — a noted expert in the field — includes myriad illustrative examples in modelling dynamical phenomena subject to randomness, mainly in biology, bioeconomics and finance, that clearly demonstrate the usefulness of stochastic differential equations in these and many other areas of science and technology. The text also features real-life situations with experimental data, thus covering topics such as Monte Carlo simulation and statistical issues of estimation, model choice and prediction. The book includes the basic theory of option pricing and its effective application using real-life. The important issue of which stochastic calculus, Itô or Stratonovich, should be used in applications is dealt with and the associated controversy

resolved. Written to be accessible for both mathematically advanced readers and those with a basic understanding, the text offers a wealth of exercises and examples of application. This important volume:

- Contains a complete introduction to the basic issues of stochastic differential equations and their effective application
- Includes many examples in modelling, mainly from the biology and finance fields
- Shows how to: Translate the physical dynamical phenomenon to mathematical models and back, apply with real data, use the models to study different scenarios and understand the effect of human interventions
- Conveys the intuition behind the theoretical concepts
- Presents exercises that are designed to enhance understanding
- Offers a supporting website that features solutions to exercises and R code for algorithm implementation

Written for use by graduate students, from the areas of application or from mathematics and statistics, as well as academics and professionals wishing to study or to apply these models, *Introduction to Stochastic Differential Equations with Applications to Modelling in Biology and Finance* is the authoritative guide to understanding the issues of stochastic differential equations and their application.
