Book Review


The relatively young subject of mathematical finance is intriguing for many applied mathematicians because of the numerous different mathematical areas which are merging in this field. From stochastic differential equations via partial differential equations to different classes of numerical methods, to mention but the most important, a large variety of mathematical tools in needed in order to solve even a rather simple problem like the valuation of financial options in a Black–Scholes framework. The book by Des Higham makes the attempt to introduce the reader to these tools in sufficient depth in order to be able to solve this problem, and this attempt is met with success.


Each chapter starts with a brief outline using bullet points and ends with notes and references and a number of exercises. Furthermore, each chapter – including those not devoted to numerics – contains a MATLAB program illustrating an aspect of the theory or the algorithm presented in the chapter (the program files as well as solutions to selected exercises and other material can be obtained from the author’s web page). Finally, each chapter is concluded by a number of quotes, of which, according to the author, “some reinforce the ideas in the text and others cast doubt on them” and which definitely help to make the reader reflect the relative simplicity of the models which are used in mathematical finance in order to model rather complex phenomena.

Compared to other recent books on the same topic (R. Seydel, Tools for computational finance. 2nd ed., Springer 2004; M. Günther and A. Jüngel, Finanzderivate mit MATLAB, Vieweg 2003) the book is more modest in its mathematical approach and covers fewer topics. On the other hand, it provides most of the necessary background in applied mathematics in a step-by-step introduction into the subject. Therefore it should be accessible even to students (or practitioners) with only few background in applied mathematics, e.g., second year students in a typical European mathematics curriculum. The book can also be recommended for courses on this subject, even for a more advanced course if the material is suitably extended.

In summary, this is a very accessible basic introduction to the subject and Des Higham’s unique writing style with many quotes and side remarks makes the reading even more enjoyable.

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