

CMS/CAIMS Books in Mathematics

David E. Stewart

## Numerical Analysis: A Graduate Course

This book aims to introduce graduate students to the many applications of numerical computation, explaining in detail both how and why the included methods work in practice. The text addresses numerical analysis as a middle ground between practice and theory, addressing both the abstract mathematical analysis and applied computation and programming models instrumental to the field. While the text uses pseudocode, Matlab and Julia codes are available online for students to use, and to demonstrate implementation techniques. The textbook also emphasizes multivariate problems alongside single-variable problems and deals with topics in randomness, including stochastic differential equations and randomized algorithms, and topics in optimization and approximation relevant to machine learning. Ultimately, it seeks to clarify issues in numerical analysis in the context of applications, and presenting accessible methods to students in mathematics and data science.

ISBN 978-3-031-08120-0



9 783031 081200

► [springer.com](http://springer.com)

Stewart



Numerical Analysis: A Graduate Course

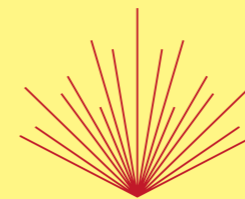
CMS/CAIMS Books in Mathematics



Canadian  
Mathematical Society  
Société mathématique  
du Canada

David E. Stewart

# Numerical Analysis: A Graduate Course



CAIMS  
SCMAI

 Springer