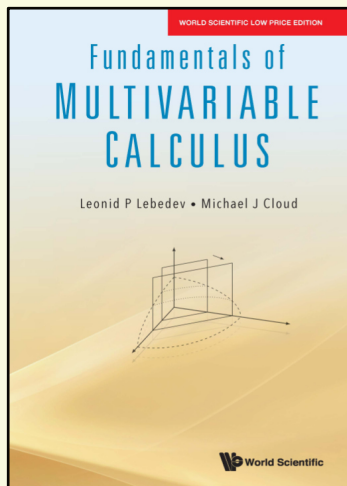


# Fundamentals of Multivariable Calculus



By **Leonid P Lebedev**  
*(Universidad Nacional de Colombia, Colombia)*  
**Michael J Cloud**  
*(Lawrence Technological University, USA)*

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## ABOUT THE BOOK

This textbook is carefully designed as an early undergraduate introduction to the calculus of several real variables. The balanced coverage is devoted to limits, continuity, partial derivatives, extrema, the nabla operator, multiple integrals, line integrals, surface integrals, and the fundamental theorems of vector calculus.

Engaging and accessible with detailed diagrams and copious worked examples, the presentation is well suited to students pursuing applied fields such as engineering. Multiple integration is motivated intuitively through the calculation of mass. The chapter-end problems provide both drill and challenge.

Overall, the book should equip students with the knowledge and confidence needed for subsequent courses.

An appendix on hints renders the book suitable for self-study. Prerequisites are limited to single-variable calculus, linear algebra, and analytic geometry.

## READERSHIP

Undergraduate students in mathematics, science, and engineering, as well as practicing engineers.

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*Contd.*

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## ABOUT THE AUTHORS

**Leonid P Lebedev** received his PhD and DSc degrees from Rostov State University for his work on mathematical problems in continuum mechanics. Now a professor of mathematics at Universidad Nacional de Colombia, he coauthored 12 previous books including *Functional Analysis in Mechanics* (Springer, 2013), *Applications of Tensor Analysis in Continuum Mechanics* (World Scientific, 2018), and *Approximating Perfection: A Mathematician's Journey into the World of Mechanics* (Princeton University Press, 2004).

**Michael J Cloud** received his PhD in electrical engineering from Michigan State University. In 2023, he retired after 35 years at the faculty of Lawrence Technological University. Dr Cloud has coauthored 14 previous books including *Inequalities with Applications to Engineering* (Springer, 2014), *Introduction to Interval Analysis* (SIAM, 2009), and *Tensor Analysis* (World Scientific, 2003).

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**MUMBAI**

Vijay Kumar

Mobile: +91 9871176434

Email: vkumar@feelbooks.in

**CHENNAI**

G Srinivasan

Mobile: +91 9003047502

Email: gsrinivasan@feelbooks.in

**KOLKATA**

Dhrubajyoti Bhattacharjee

Mobile: +91 9836160013

Email: dbhattacharjee@feelbooks.in

**HYDERABAD**

K.S.Vishwanath

Mobile: +91 9871745850

Email: kvishwanath@feelbooks.in

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