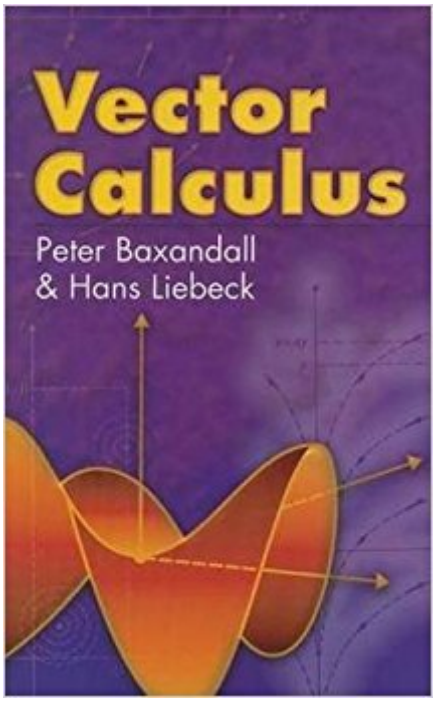
Vector Calculus (Dover Books On Mathematics)



Synopsis

Traditionally, linear algebra, vector analysis, and the calculus of functions of several variables are taught as separate subjects. This text explores their close relationship and establishes the underlying links. A rigorous and comprehensive introductory treatment, it features clear, readable proofs that illustrate the classical theorems of vector calculus, including the inverseÃ Â andÃ Â implicit function theorems. Prerequisites include a knowledge of elementary linear algebra and one-variable calculus.Starting with basic linear algebra and concluding with the integration theorems of Green, Stokes, and Gauss, the text pays particular attention to the relationships between different parametrizations of curves and surfaces, and it surveys their application in line and surface integrals. Concepts are amply illustrated with figures, worked examples, and physical applications. Numerous exercises, with hints and answers, range from routine calculations to theoretical problems.

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Customer Reviews

Traditionally, linear algebra, vector analysis, and the calculus of functions of several variables are taught as separate subjects. This text explores their close relationship and establishes the underlying links. A rigorous and comprehensive introductory treatment, it features clear, readable proofs that illustrate the classical theorems of vector calculus, including the inverse and implicit function theorems. Prerequisites include a knowledge of elementary linear algebra and one-variable calculus.Starting with basic linear algebra and concluding with the integration theorems of Green,

Stokes, and Gauss, the text pays particular attention to the relationships between different parametrizations of curves and surfaces, and it surveys their application in line and surface integrals. Concepts are amply illustrated with figures, worked examples, and physical applications. Numerous exercises, with hints and answers, range from routine calculations to theoretical problems.Dover (2008) republication of the edition published by Oxford University Press, New York, 1986. 560pp. 53/8 x 81/2. Paperbound.See every Dover book in print at www.doverpublications.com

This book is probably daunting for a beginner, but if you already are comfortable with linear algebra and some analysis, this is an excellent treatment of multivariable calculus. I feel that this book fills an important gap in my studies, in that after learning basic multivariable calculus I went on to analysis and topology of arbitrary spaces, but never really applied those topics to R^n. In that respect, this book was exactly what I was looking for.

Incredibly rigorous, but easy-to-digest, text, a real introduction to vector analysis but it does not assume knowledge on topology nor calculus on mainfolds. Perfect for self-learners. It includes a nice amount of exercices (must of them proof-like) and introductions to other disciplines such as differential geometry, topology, calculus on mainfolds, etc.

WAY TOO THEORETICAL FOR ME TO READ LOL :(((((((I GUESS ITS A GOOD READ IF YOU HAVE TIME TO REALLY TAKE IN THE CONCEPTS AND UNDERSTAND WHAT THIS COMPLICATED BOOK IS SAYING... IF YOU UNDERSTOOD THIS BOOK THEN YOU WOULD DEFINITELY GO BACK TO CLASS AND HAVE A CLEARER PICTURE... ITS SO DEEP THO, NOTHING PRACTICAL WITH AUTHORS EXPLANATIONS, ETC

Initially, I must admit that I was easily impressed by the compendious nature of the work in question. I realized early on that anyone tackling this particular work would surely have to bring a considerable amount of abstract mathematical sophistication to the table. I guess this was my greatest shortcoming (read, "blunder;error;miscalculation", etc.), truly a shortcoming that would in the end prevent me from deriving the most benefit possible from this work. Not wishing to take anything away from Messrs. Baxandall and Liebeck or to question their intellectual accomplishments, I just cannot get comfortable with the manner by which they purport to impart their vast knowledge to those wishing to use their work. While I have never believed that serious

students should ever be mollycoddled, I also am not liable to easily cotton to being overwhelmed by immense knowledge that somehow cannot be readily and effectively transmitted to the ones being taught. Permit me to cite a relatively simple counterexample. In merely thumbing through a work by the late Richard Silverman, I came away satisfied that HE COULD teach me the proper techniques for determining surface areas. With Baxandall and Liebeck, I never felt that I was even going in that direction at all, when I read through what they had to say about surface integrals. I should be only too willing to put my discomfort down to my own lack of mathematical sophistication and readily admit that I could never be thought of being in the same class with Messrs. Baxandall and Liebeck. But, then again, their book was advertised as one capable of linking together various mathematical disciplines to enable the student to better make his/her way through vector calculus, as presented by the two authors above mentioned. Maybe others would be able to do so. I find it surely regrettable that I cannot. Sad to say, but, demonstrable intelligence and consummate command of one's subject are surely no guarantee of anyone's acumen in the critical matter of instructing others.